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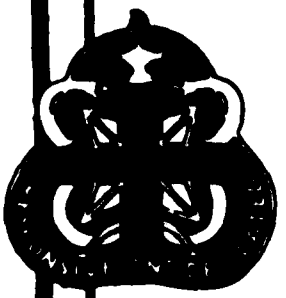

United States Army Health Care Studies and Clinical Investigation Activity

EVALUATION OF THE MEDICAL AND DENTAL PORTIONS OF THE SOLDIER DATA TAG SYSTEM

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In 1981, Soldier Support Center (SSC) was directed to evaluate microchip technology for use in individual soldier data cards. This directive led to the Soldier Data Tag System (SDTS), which was tested at Fort Benjamin Harrison, IN. The SDTS consisted of an individual microchip soldier data tag (SDT) containing personnel, financial, medical and dental records. A microprocessor-based reader-writer, a data base, and the software to read and/or update the tags, as well as to search the data base were also components of the SDTS.

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The objectives of this study were: (1) From the provider perspective, evaluate the acceptability, comprehensiveness, and flexibility of the medical and dental record portion of the SDTS; (2) From the administrative and legal perspectives, evaluate the acceptability, comprehensiveness, and flexibility of the medical and dental portions of the SDTS; (3) To evaluate AMEDD personnel requirements to operate the SDTS; (4) To evaluate the equipment requirements to operate the system; (5) To evaluate the practicality of an implemented system; (6) To evaluate the SDTS both as a replacement for the current medical and dental records and associated data systems, and as a needed and defensible supplement to the current medical and dental records and associated data systems. This study was conducted through a literature review and through consultations with subject matter experts. Keywords: → (19)

The study reached the following conclusions: (1) An automated medical record is an item which has become fully operational in the civilian sector. The SDTS can be a valuable source of medical information in both the garrison and the field; (2) From an administrative point of view, the automated medical or dental record would be acceptable, if the individual care provider and MTF were identified. For signatures and detailed narratives, a note in the automated record which would locate the paper would suffice; (3) The AMEDD personnel impacts of the SDTS can be placed into two categories, those related to the initial entry of the data into the system, and those related to system updates. The initial entry of data will require 15 to 60 minutes of time per record. The updates of an individual record could be accomplished without additional workload if these requirements were met by data gathered for other patient data systems; (4) If the SDTS is operated in concert with an ambulatory data capture system, the Theater Army Medical Management Information System (TAMMIS), and the Individual Patient Data System (IPDS), the equipment requirements unique to this program would be acceptable, as most are planned to support other programs. Interoperability with existing or proposed systems will be difficult at OCONUS MTFs due to the lack of automation at these facilities; (5) If implemented as described herein, the ambulatory data capture to support the SDTS would cost $0.08 per encounter, with costs shared with other programs. The inpatient data input would depend on costs already supported by biometric data requirements. These costs are reasonable in light of the benefits to be gained; (6) The SDTS will not replace the paper health record in the foreseeable future. It is fully justified, if implemented in concert with the other programs. The development of an automated system to collect dental data for the SDTS may not be justified at this time. An arrangement for the SDT Health Record was suggested.

This study recommends that: (1) The ambulatory and the inpatient data base portions of the SDTS medical data base be implemented; (2) The data tag portion of the SDTS medical record be implemented for active duty Army personnel; (3) The SDTS and the SDT medical record implementation be extended OCONUS upon installation of suitable patient data systems in these facilities; (4) Further study be given to the requirement to automate some portion of the dental record; (5) Appropriate liaison be established to insure that the needs of the AMEDD are met. An Executive Summary is available as Part A of this report.

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Introduction

In December 1981, the U.S. Army Soldier Support Center (SSC) was directed by the Deputy Chief of Staff for Personnel, Headquarters, Department of the Army, to evaluate microchip technology for use in individual soldier data cards. This directive led to the Soldier Data Tag System (SDTS), which was recently tested at Fort Benjamin Harrison, IN by the TRADOC Combined Arms Test Activity. The tested SDTS consisted of an individual microchip soldier data tag (SDT) containing battlefield personnel, financial, medical and dental records. A microprocessor-based reader-writer, a data base which duplicates the information found on the tags, and the software to read and/or update the tags, as well as to search the data base were also components of the SDTS.

The SDT currently being considered contains 64K of electronically erasable programable read only memory and associated circuitry. These are embedded in a tag of durable material roughly 1 3/4" by 3/4" by 1/8" in size. The current tags and tag interfaces are commercially available devices (Datakey, 1983), as are the microcomputers. The tag is read from, and written to, using a microcomputer equipped with an SDT interface. The personnel, finance, and medical microcomputers were, in the test system, linked to form a distributed data base. However, users were able to access only those portions of the data base relevant to their functional area. The goals of the current SDTS were (1) to demonstrate the feasibility and utility of the SDTS in the personnel, financial, and medical and dental areas, and (2) to reduce the technical uncertainties involved in

using such a system within the military environment (Potter, et al., 1983). The SDTS is also attracting attention outside of military circles (Hirst, 1983; Sun, 1983), because this system represents a state-of-the-art application of computer technology. Ultimately, it is hoped that the SDTS will reduce the number of support personnel involved in records handling, eliminate paper records, and improve support in both wartime and peacetime. Because most, if not all, of the information in the data base is duplicated on the SDT, the system enjoys a high degree of redundancy (Lacher, 1983). Any system adopted is likely to differ substantially from the current test system. The Computer Stored Ambulatory Record (COSTAR, 1978) system developed jointly by the National Center for Health Services Research, the Laboratory of Computer Science of Massachusetts General Hospital, and the Digital Equipment Corporation, provides a basis for an automated outpatient record which is similar in concept and function to the data base portion of the SDTS medical record. No dental record is included in the COSTAR sytem. The civilian experience with records of this type indicates that they are entirely satisfactory as records once the overall system is fully developed (Dayhoff, 1983). This point will be discussed more fully in a subsequent section of the report.

Current doctrine does not permit paper medical, dental, and other records to be taken onto the battlefield. Thus, wounded soldiers must now be treated without reference to their personal medical or dental records. This lack of information could hinder the treatment of a casualty, and could be even more of a problem

in a mass casualty situation (SSC, 1983). Indeed, rapid access to the medical and dental records is just as vital in a garrison emergency situation, or when emergency treatment is sought in a location where the paper records are not available, as is the case in a tactical setting. While a fully functioning system of this type would appear to be useful, there are a number of questions about the feasibility of the SDTS, or any similar system, as a medical or dental record.

Objectives

The objectives of this study were as follows:

1. From the provider perspective, evaluate the acceptability, comprehensiveness, and flexibility of the medical and dental record portion of the SDTS in both field and garrison settings.
2. From the administrative and legal perspectives, e.g., the American Hospital Association and the Joint Commission on Accreditation of Hospitals, evaluate the acceptability, comprehensiveness, and flexibility of the medical and dental portions of the SDTS.
3. Evaluate AMEDD personnel requirements to operate the SDTS in terms of skill level and number required.
4. Evaluate the equipment requirements to operate the system. The ratio of SDTS reader-writers to health care providers will be estimated.
5. Evaluate the practicality of an implemented system. Would AMEDD-wide implementation of the SDTS result in a system which is too complex and expensive to be practical?
6. Evaluate the SDTS both as a replacement for the current medical and dental records and associated data systems, and as a

needed and defensible supplement to the current medical and dental records and associated data systems.

Method

This study was conducted through a literature review and through consultations with subject matter experts. The literature review was directed towards determining the general acceptability, comprehensiveness, and flexibility of automated medical and dental records systems, the SDTS' standing relative to these systems, and the requirements for an automated medical and dental records system. The consultations were with HCSCIA personnel, Patient Administration Systems and Biostatistics Activity personnel, Headquarters, Health Services Command consultants, Academy of Health Sciences specialists, health care providers assigned to Brooke Army Medical Center, and personnel at the Soldier Support Center who were involved in the SDTS test. These consultations were used to evaluate the SDTS from the provider, the administrative, and the legal perspectives, to evaluate the requirements to implement and maintain the system, and to evaluate the practicality and overall utility of the system.

Findings

The issues of adequacy, acceptability, utility, and cost of the SDTS have been addressed in the course of development of computerized ambulatory records systems in the civilian sector. Henley et al. (1975) reported that these systems were undergoing development, and as a result, had achieved few of their design objectives, and had generally not been evaluated. Many benefits

in terms of access to care, quality of care, patient services, reductions in costs, improved practice management, and provider training were anticipated. Kuhn and Wiederhold (1981) updated the findings of the 1975 study. They found that several computerized ambulatory records had achieved operational status, including the Computer Stored Ambulatory Record (COSTAR), the Automated Medical Record (AUTOMED), The Medical Record (TMR), and the Regenstrief Medical Record (RMR). These systems will be described more fully in subsequent sections of this report. Areas found in need of further development and work included matching the system to the practice setting, improving the user interfaces by attending to encounter forms design, user displays, and human factors concerns, improving user acceptance and motivation, and fielding prototype systems in large numbers. Over the years, the range of expected benefits to be derived from such systems has narrowed to improving quality of care, providing more effective management of practices, and improving health services research. These benefits are now being realized in practice (Retchin & Blish, 1984).

In commenting on the general characteristics of the commercially available systems, Jelovsek (1983) noted that systems designers have tended to focus on real time online processing rather than batch mode processing. In his view, an automated record should contain an exhaustive problem list, as well as diagnoses, procedures, therapies, studies, narrative notes, subjective and objective physical findings, all linked to a date and provider. He notes that in most systems, the data element dictionary, which permits the efficient encoding of many

of these items, is the true basis of such a system. For the remainder of this section, the Findings will be presented in an Objective by Objective format.

1. Evaluation from the Provider Perspective. From the provider perspective, the acceptability, comprehensiveness, and flexibility of the medical and dental portion of the SDTS in both field and garrison settings were evaluated. This objective was accomplished through a literature review and through consultations.

An older report (Multonomah, 1976) addressed a number of the issues involved in implementing an automated medical data system. They found that an encounter form or input medium must be easy for the provider to use, that the providers must be given feedback, that the system must be responsive to the provider, and finally, a properly developed set of diagnostic and procedure codes is essential in order to properly implement such a system. This report noted some provider resistance, but suggested that many of the reporting and data requirements facing providers and medical treatment facilities both then and now would greatly improve system acceptance. This report documented the impression that the availability of on-line medical data was worth the expense involved. Whitting-O'Keefe, Simborg, and Epstein (1980) found that a paper based time oriented flow chart was able to serve effectively as the only source of clinical information in most outpatient follow-up encounters. This presentation format is characteristic of many of the automated records discussed herein, and offers no more detail than do the automated systems

discussed below.

McDonald et al. (1977) described the use of the Regenstrief Medical Record (RMR) in an ambulatory setting. This record employed a computer generated encounter form which relied on optical character recognition technology for much of its data input. In spite of the rigidities of the input and output formats in this system, it was well accepted because the encounter forms were tailored to specific patients, and because the data were input as numerals, rather than requiring the use of a menu driven input medium.

Stead, Hammond, and Straube (1982; 1983) commented on the adequacy of the computerized medical record as a replacement for the paper chart. They discussed experiences with The Medical Record (TMR) system. The record consists of a complete list of problems, diagnoses, and procedures, as well as data on the onset, resolution, and recurrence of the episodes. Physical findings are coded for location, degree, and general description. Narrative input is allowed. Although providers were dissatisfied with the limited nature of the encounter form, and were unhappy with being unable to include unlimited free text narrative in the record, in only 11% of the encounters during a test period did the providers choose to supplement the computer record with traditional notes. However, there was no case in which the information recorded in these notes could not have been input into the computer system. They found that it was valuable to have all problems listed in the record output, not just the active problems. Although this is a relatively complex record system, it was found to be fully adequate to meet all of the

facility's needs, as long as some free text area for comments was allowed.

Successful implementations of such systems were most likely when the providers were involved in system design, participated in the decision to implement the system, and received adequate training and support in using the system (Kuhn & Wiederhold, 1981).

Brown, Lattimer, Harbort, and Peake (1983) have described the sources of errors in medical data entry and have outlined the steps which are necessary to avoid these errors. Errors can arise in charting, in abstracting and coding, and in data conversion. Each of these stages should be designed to incorporate checks of validity, e.g., that the value entered is an acceptable value, and of reasonableness, e.g., that the value entered is reasonable when considered in context. They felt that coding by someone other than the care provider made it difficult to insure that the data acccurately reflect the subtleties of the care rendered. This coding was generally done as part of a keying process which is susceptible to errors of omission, substitution, and transposition. If the data are recorded by the provider directly in a machine readable form, many of these errors can be avoided. It must be kept in mind that the real key to error control is redundancy in the data.

The quality of hospital discharge data has been the subject of extensive study (Corn, 1980; Demlo, Campbell, & Brown, 1978; Institute of Medicine, 1977a; 1977b). Studies of the Institute of Medicine data (1977a; 1977b; Demlo, et al., 1978) revealed

that principal diagnoses were coded accurately in 57.2% to 65.2% of the cases, while the accuracy of coding for principal procedures was between 73.2% and 78.9%. These studies used a criterion of 100% match to four digits, and did not address issues related to near misses on the codes. However, when a criterion of 100% match to three digits is used, the accuracy of coding of principal diagnoses increases to roughly 75% correct, and if the criterion requirement is changed to allow acceptance of records in which the principal diagnosis is present in the abstract, but not coded as the principal diagnosis, the level of accuracy rises to nearly 83% (Corn, 1980). Using this latter criterion, a military hospital study found that principal diagnoses were coded with 92% accuracy (Leahy, 1984). In the ambulatory setting, Garrett, Stead, and Hammond (1983) reported that computerized encounter records were acceptable as substitutes for the paper record in 93.2% of the encounters studied, and that the computerized records were error-free in 96.6% of the cases, while Revicki (1984) found that encoded billing diagnostic data were acceptably similar to the hard copy record diagnostic data in 85% of the cases, and were actually preferred in 20% of the cases. These levels of accuracy are acceptable for clinical purposes, particularly in light of provider-to-provider variations in the approach to medical problems (Eddy, 1984).

Ayers, Murray, Aller, and Montgomery (1983) observed that in an emergency room setting with the paper record available, the providers do not suffer from a shortage of information. Rather they suffer from an overabundance of irrelevant data. This is

the sort of problem which is ideally suited to a computerized record, for the output can be customized to the needs of the particular user. In other words, they would be given only the amount of information required by the situation. This is one of the major advantages of such a record (Stead & Hammond, 1983).

The Training and Doctrine Command Combined Arms Test Activity (TCATA) evaluated the SDTS in a garrison environment at Fort Harrison, IN from 6 to 17 February 1984 (Soldier Data Tag System Test Report, 1984). Only those portions of the report relevant to the medical portion of the test will be discussed here. Ten of 16 health care providers responding to the TCATA survey noted that the level of medical detail on the tag (Annex A) was not adequate, necessitating recourse to the paper record; however, almost 75% were pleased with the potential of the data based medical record. On the average, slightly over two minutes were required to update the data base following an encounter. Just over one minute was required to similarly update the tag. Only one soldier of 69 examined failed to have the tag in his possession during the test. The SDTS alone was adequate for all of the simulated peacetime encounters, and for 50% of the actual peacetime encounters. The timeliness of data entry and retrieval using the SDTS was rated as either satisfactory or very satisfactory by the majority of the providers. The level of detail on the SDTS was not felt to be adequate for diagnostic purposes. This may reflect both the relative immaturity of the system and the lack of user experience with the system. Barnett, et al. (1982) report that providers who were experienced users of

an automated system preferred it (COSTAR) to a paper medical records system. A number of problems related to confidentiality were identified. All of these came under the heading of concern about unauthorized access to the system, and are, in the opinion of the authors of this report, readily controllable. Security systems have been described in the literature (Sadock & Saunders, 1984). Almost 90% of those responding to the TCATA surveys (Soldier Data Tag System Test Report, 1984) found that the SDTS was either satisfactory or very satisfactory for medical purposes. The best features of the system were its speed, convenience, and availability of the record. From the point of view of the individual soldier, the least liked features of the system, were the presence of the record in combat, direct personal cost to replace a lost SDT, and the expected difficulty of maintaining the currency of the record.

Local consultations tended to confirm this view of the validity of the SDTS concept generally. From the point of view of providers working in fixed facilities, Kussman (1984) felt that it would be useful to have as much information as possible in any setting, but also felt that the required information could be placed on the existing "dog tag." The authors feel that this approach is clearly not appropriate, if the desire is to produce a useful medical record containing a reasonable level of detail. Kussman found nothing in the concept to be objectionable. The reception from the field medical community was even more positive. Interviews with personnel of the Combat Casualty Care Course, Academy of Health Sciences (Watson, 1984) revealed agreement with the concept and the execution of the SDTS record.

The authors feel that it is important to reduce or eliminate duplication of data entry in order to maintain a reasonable level of provider acceptance of the SDTS. This point will be discussed more fully in Findings section 4 of this report.

In a recent survey of the attitudes of military health care personnel towards the introduction of automated outpatient records, Nice and Monzon (1983) reported that the extent of positive attitudes towards the automated record was inversely related to level of satisfaction with the current record, and positively related to previous computer experience. Attitudes toward the present record were quite neutral. This suggests that some training in automation focussing on the speed, availability, and accuracy of the automated record would smooth the transition to such a system. Indeed, there is reason to believe that the extent of the promotional effort is a critical determinant of the succes of such system implementations (McDonald et al., 1984).

Automated medical records, in general, appear to be fully capable of meeting the needs of providers in a wide variety of practice settings. Both the SDTS medical and dental record screens which are contained in Annex A, and the recently revised SDTS record screens contained in Annex B (Lacher, 1984), have the potential to become a part of a valuable source of medical information. However, a medical record should record diagnoses, procedures, provider identification, date of encounter, place of encounter, and disposition, as is done in the current Health Record. Thus, the present SDTS is neither sufficiently detailed in terms of diagnoses and procedures, nor adequate in terms of

data elements. The present SDTS diagnoses and procedures may be found in Annex C. A sample SDTS outpatient encounter form is contained in Annex D. The revised record screens are considerably improved, but the amount of space devoted to input, output, medications, and vital signs is inappropriate in what is essentially an automated Health Record. Solutions to these difficulties with the present SDTS medical record will be discussed in Findings section 6 of this report.

2. Administrative Evaluation. From the administrative and legal perspectives, e.g., the American Hospital Association and the Joint Commission on Accreditation of Hospitals, the acceptability, comprehensiveness, and flexibility of the medical and dental portions of the SDTS were evaluated. This objective was met through a literature review.

Knepper and Abdelhak (1981) have outlined their view of the elements of a paper medical record, which is applicable to our present discussion. They list demographics, medical history, results of physical examinations, audiometric records, vision records, laboratory results, radiology results, treatment records, and records of exposure to hazardous substances as critical elements.

Ostrowski and Barnes (1983) have pointed out that automated medical records systems are available in levels of complexity and detail suitable to any form of practice. Simple systems collect the basic characteristics of clinical encounters, accomplish simple tabulations, and provide basic management data. Input and output formats are fixed through rigid codes, while data entry is accomplished by clerical personnel. Intermediate level systems

add history recording capability, offer specialized code lists for specific clinics, provide some free text capability, and offer more flexible report formats. The most complex systems record problem lists, complete progress notes, diagnostic study results, and medications. These latter systems offer input and output formats that are flexible; input is commonly accomplished by the provider. Such automated patient records contain demographics, an active problem list with dates and optional free text, subjective, physical, and diagnostic study findings from past encounters, current treatments and procedures, progress assessment, planned and pending procedures, and provider prompts.

Army Regulation 40-66, Medical Record and Quality Assurance Administration (15 July 1980) with changes 1 (15 January 1982) and 2 (1 November 1982), describes the requirements for the Health Record, which is the record document most similar in function to the SDTS. At present, all Health Record entries must be signed by the person making the entry. For outpatient care, they must document the date, the complaint, the diagnosis, examination or test results, treatment, disposition, progress statement if required, and the cause and circumstances of an injury. Except for the signature requirement, all of these requirements could be accommodated by the SDTS, either as coded entries (diagnoses, results, treatments, disposition, causes or circumstances of injury) or as free text. Future modifications of the SDTS could address the coding of examination or test results, progress, and cause or circumstances of the injury. This latter item could be coded as is described in the Individual

Patient Data System Users Manual (1982). Additional coding would be required to accommodate entries for medical excuse from duty, physical examinations, orthopedic footwear, board proceedings, and drug abuse treatment. These items should doubtless be handled as coded entries with a minimum of free text. The master problem list as it currently exists in the SDTS is not an adequate medical history. This is the sort of input which would be easily coded, and should be further studied.

Converse (1984) has stated that the American Hospital Association follows the guidlines of the Joint Commission on Accreditation of Hospitals. Their Accreditation Manual for Hospitals/85 (1984) outlines a series of requirements for a health record. These match well with the data elements outlined above. However, this manual does allow for the use of computer keys, or provider codes, to identify the provider responsible for a record entry. This type of entry authentication would make feasible the integration of the SDTS with the pending Ambulatory Care Data Base portion of the Performance Measurement Study (Misener, 1984b), or any successor automated ambulatory data capture methodology.

The legal issues associated with the use of automated records have been discussed relatively extensively in the literature (Levinson, 1983; McIntyre, 1982; Norris & Szabo, 1982; Tamm, 1983; Watson, 1981). While liability could clearly result from the use of an inadequate automated record system, there is also reason to believe that liability could be imposed for failure to appropriately employ available technology (Levinson, 1983). The issue of confidentiality of patient information in an

automated record system has also been raised. Levinson (1983) notes, however, that the level of protection against the unauthorized use of paper records is very low, certainly lower than the level of electronic protection available in computerized systems.

From the legal and administrative point of view, it will be necessary to provide paper storage for those items of signature data related to informed consent, detailed narratives, privacy act information, and other hard copy information which is not easy to code. Much of this information is generated in the inpatient setting, and does not, as a matter of course, become a part of the Health Record. With this necessary hard copy back-up, the automated health record is fully adequate, and has the potential to revolutionize quality assurance programs (O'Brien, King, & Mangelsdorff, 1983; O'Brien, King, & Mangelsdorff, 1984), and to improve the quality of patient care by providing timely, accurate, easily readable, and readily available patient information.

3. **Evaluation of Personnel Requirements.** The AMEDD personnel requirements to operate the SDTS in terms of skill level and number required were evaluated. Information which will allow the determination of the personnel requirements to convert to and maintain such a medical records system is provided.

In the Soldier Data Tag System (1984) evaluation, data entry from the enounter forms was successfully entered by keying in roughly 90% of the observed cases. In excess of 95% of the tag and data base updates were successful. Fifty percent of these

failures were hardware related. The space and format of the health record were found to be acceptable in most cases. Overall availability of the system was very good. The encounter form, which was filled out by the provider and keyed into the system by a clerk, represents a cumbersome data handling methodology for fixed facilities. The SDTS, as presently configured, does increase perceived workload and personnel requirements, although the actual personnel level was not increased during the TCATA test. This perception, while accurate, may be overcome in the future through more efficient data entry, increased user experience, and increased emphasis on providing system benefits to the providers. The present SDTS would result in increased workload due to the requirement to key input those data already entered by the providers on the encounter form (see Annex D). Actual entry of coded data and free text recorded on the forms by providers can be accomplished by clerical personnel (Barnett, et al., 1982; Campbell, Ries, & Adams, 1984). Data entry could be accomplished much more efficiently by using a series of optical mark reader encounter forms of the general type shown in Annex E. This technology has been used successfully to input ambulatory data (Misener & Gilbert, 1984).

Input into an automated medical record can clearly be accomplished by clerical personnel with relatively little knowledge of medical terminology. The preceeding discussion clearly suggests that, except for the initial bulk input of records into a system, input is best accomplished directly by the provider, either through a terminal or through a machine-readible input medium such as an optical mark readable form. For the

initial input of records into the SDTS Lacher (1984) has estimated that the average routine record would require about 13 minutes of clerical time to transcribe and keypunch, and three minutes of provider time to verify the accuracy of the input, for a total processing time of about 16 minutes (see also SSC, 1983). However, very complex records may require over one hour for complete entry, even when heavily abstracted (Garrett, Stead, & Hammond, 1983). Thus, the time required for initial record entry may range from 15 minutes to over an hour. Based on a 168 hour work month, using the 11% nonavailability factor, and assuming that it would take 30 minutes to input a record, a facility would require 1 additional employee for each 300 records to be entered each month. Record updates could generally be handled by existing personnel, although the automated input of these data would require one additional employee per facility to support an ambulatory data capture system (Misener, 1984). Such an approach is consistent with the authors' view that the AMEDD should move in the direction of multi-use, shared data systems. It may be desirable to accomplish initial entry in the course of periodic physical examinations, inpatient encounters, or on the basis of priorities yet to be established. The first two options would tend to spread this workload over time quite efficiently.

4. Evaluation of Equipment Requirements. The equipment requirements to operate the system were evaluated. The ratio of SDTS reader-writers and related equipment to health care providers was estimated through a literature review and through consultations.

The estimates reported in this section presuppose that the

SDTS data entry will be accomplished in concert with the data entry both for the Ambulatory Care Data Base portion of the Performance Measurement Study, which will begin data collection shortly (Misener, 1984b), or some similar successor ambulatory encounter data capture system, and with the Individual Patient Data System. This sharing of personnel, equipment, costs, and data would improve the efficiency of all of the medical data systems involved. Operations in concert with the pending Ambulatory Care Data Base would require one system consisting of one low speed optical mark reader, one microcomputer, and one tag receptical (estimated cost $20,000) for each group of co-located clinics or isolated clinic. These distributed systems could check the encounter forms for errors and load the tags. After any required corrections, the encounter forms would be forwarded to the central outpatient records area, where the form would be rescanned and the data entered into the local data base. Further reports would be made to a central ambulatory data processing facility, e.g., PASBA. This centralized MTF master system would cost $40,000 to $55,000, depending on the size of the MTF. It should be noted that the cost of the MTF master system would not be attributable to the SDTS, but rather to the Ambulatory Care Data Base. Indeed, some portion of the costs of the clinic systems could also be charged against the Ambulatory Care Data Base Project. It must be kept in mind that the microcomputers mentioned are multiuse devices which will be available for other applications when not supporting the SDTS or the Ambulatory Care Data Base.

The inpatient data portion could be handled by making a machine readable abstract of the IPDS record available in the MTF. The IPDS patient record presently exists in a suitable format within the Northern Telecom system at 24 CONUS MTFs (Individual Patient Data System Handbook for the Northern Telecom Terminal, 1984; Medical Summary Reporting System Users Manual, 1983; Medical Summary Reporting System Operations Manual, undated draft), and within the Inpatient Accounting System (IAS), which is available at all other CONUS MTFs as well as Tripler Army Medical Center (Inpatient Accounting System User's Manual, 1984). With the exception of the planned Triservice Medical Information Systems (TRIMIS) Composite Health Care System (CHCS), scheduled to be fully fielded during the last quarter of fiscal year 1991, and the pending TRIMIS Quality Assurance System (Kauzlarich, 1984), no automated inpatient record is either available or planned for OCONUS MTFs other than TAMC. This application of the IPDS data base could be supported for the cost of the tag receptical and software to load the tag from the patient records stored on these systems.

5. Practicality of the SDTS. The practicality of an implemented system was evaluated. The complexity and expense associated with an AMEDD-wide implementation of the SDTS is discussed. This was accomplished through a literature review and through consultations.

The SDTS hardware seems to be acceptable for a prototype system. The SDTS cannot accommodate signatures, which would have to be maintained in a paper record, unless some type of provider

and document register identification system could be implemented. In addition, more space in the system for additional medical detail is needed, and there is a problem with inputting codes by keying. The SDTS is faster, and it is more mobile than the paper record. The practicality of the proposed SDTS would be improved were it part of an integrated medical information system of ambulatory (Misener, 1984b) and inpatient (IPDS, 1982) data. Such a system could serve the needs of the AMEDD as an interim system until the TRIMIS CHCS is fielded at the end of fiscal year 1991. Indeed, the inpatient record is already being reduced to machine readable form as a part of the Individual Patient Data System (1982). An abstract of this record, containing selected data fields, made available to the SDTS data base, would, except for the lack of provider identification data, answer the needs of the SDTS for inpatient data. Data elements to be abstracted from the IPDS record would include: reporting MTF, register number type case, clinic service, date of admission, days in MTF, disposition, diagnostic codings, and operations/procedures codings.

Misener and Gilbert (1984) have reported on the use of an automated ambulatory care data base. They used an optical mark reader form to capture encounter data. The technology was found to be inexpensive, reliable, and cost effective. Provider acceptance was generally not a problem after start-up. Some of the resistance doubtless would be overcome by forms tailored to specific services. Feedback was provided to each provider. Future implementations of this system will provide encounter forms tailored to specific clinics, local data base search

capabilities, interfaces with the appointing system, feedback at the local facility, specific clinic, and individual provider levels, and an abundance of data for clinical, management, and research purposes. This system could easily provide the data input for the SDTS without the need for keying the data from an encounter form. The data elements available include demographics, date, procedures, examinations, referrals, diagnoses, and dispostion. Each encounter could be scanned directly onto the SDTS, thus eliminating the need for rekeying of the data by clerical personnel.

Morgan et al. (1983) have reported that COSTAR was ideally suited to the specialized information needs of a kidney transplant unit. These findings suggest that a computerized record, properly designed and implemented, can meet the medical data requirments of almost any level of practice.

Hammond, Stead, Straube, and Hammond (1983) discussed some of the changes which had been needed in the TMR during the course of its development. One of the cornerstones of the TMR system is that all information on a patient should be kept in a single record. However, in the long term it was clear that storage of patient information would be a problem. One solution was to purge the data base of a record after a preselected period of time, usually 24 months. As the size of patient records grew, it became clear that some of the data would have to be stored in an alternate format. In their experience, clinic services found it necessary to archive after 20-40 encounters, keeping the most recent ones online and storing the others for recall. This quite

complex record system generated an average storage requirement of 0.2 to 0.3 Kbytes per encounter. Off-line archiving would clearly be of use in containing mass-storage costs.

These findings suggest that the medical and dental portions of the SDTS might be a three level system. The highest level would be a centralized data base which would store, generally off-line, all of the encounter records generated, much as is now the case with IPDS. The second level, the MTF data base, would maintain the recent data and as much of the older data as there was room to store. The third level would be the Soldier Data Tag itself. The tag would contain a summary of the person's current medical condition, consisting of only the most recent or the most crucial data. If the storage capacity of the SDT were exceeded, data would be archived to the second or third levels of the system. To the extent possible, the system design should conform to the human engineering guidlines proposed by Hendricks, Brooks, Marshak, and Doyle (1982).

In 1977, the cost for the Regenstrief Medical Record was $2.04 per encounter for 30,000 encounters over two years, based on leased hardware and computer time (McDonald, et al., 1977). Estimates based on purchase of current technology suggest that this cost could now be reduced substantially. Referring only to the COSTAR system, Locke (1982) sites additional costs of $0.87 per encounter for normal medical records tasks, but notes that a savings of $0.72 per encounter relative to the costs of implementing the full capabilities of the automated system through manual methods. In the Ambulatory Care Data Base Study (Misener & Gilbert, 1984), the cost per encounter to generate a

machine readable record, exclusive of costs associated with investigator time, was $0.17. For the Ambulatory Data Base Portion of the Performance Measurement Study, which will be much more like what would be required to support the SDTS, the cost per encounter is estimated to be $0.12, based on one additional full time equivalent per test site and on the use of leased equipment (Misener, 1984a). The best estimates suggest that a similar ambulatory data capture system, if implemented Army wide with purchased equipment, would cost $0.08 per encounter. Actual equipment costs would average $75,000 per MTF in addition to a per encounter form cost of $0.06. These costs would have to be borne in order to support any implementation of an ambulatory data capture system for the SDTS. As the Ambulatory Care Data Base project will capture many of the data elements needed by the SDTS, it is reasonable that these projects share data. Those costs associated with tatical implementation could be subsumed under the SDTS and the Theater Army Medical Management Information System (TAMMIS) programs.

In terms of other costs these systems reduce some management expenses and there is some evidence that they can reduce the costs of direct patient care. Wilson, Clement, McDonald, and McCabe (1982) found that printed summaries from a computerized medical record reduced both the number and the cost of the diagnostic tests internists ordered by roughly 15% in an emergency room setting when compared to a control period during which these summaries were not available. Standard paper records were equally available during both periods. Kozel (1983)

evaluated the cost-effectiveness of the TMR system. The fully implemented system improved the appointing operations, enhanced quality and continuity of care, and improved user satisfaction. Improved record keeping was also found to be an advantage. The computerized medical record had the significant advantage of being available when the paper record was not handy. A problem was found in the completeness and accuracy of the diagnostic coding as entered by the providers. This may be related to their continued reliance on the paper record. Use of TMR did lead to a personnel savings in ancillary and support areas. The system was found to be cost effective. The coding problems could be overcome through provider training in the capabilities of the system which were not being properly used. Saxena, Sit, and Forward (1983) have found that, while it did not signifigantly reduce the amount of time spent by physicians in records-related activities, a computerized ambulatory record is cost-beneficial if the qualitative benefits in the areas of clinical correlation, patient services, direct time savings, medical control of patients, flexibility in changing records, file review, neatness of records, documentation of quality of care, effecient communication, and patient recall are taken into account.

The present findings suggest that the SDTS is neither too costly nor too complex for AMEDD-wide implementation, providing that it is installed as a part of an interim integrated medical information system. Implemented in this fashion, the system would be of considerable value to the AMEDD in terms of record availability, completeness, accuracy, quality assurance, and research and management data functions.

6. Evaluation of the Need for the SDTS. The SDTS was evaluated both as a replacement for the current medical and dental records and associated data systems, and as a needed and defensible supplement to the current medical and dental records and associated data systems. This was accomplished through a literature review and through consultations.

Beaman, Justice, and Barnett (1979) offered a summary of their experiences with the Computer Stored Ambulatory Record (COSTAR). They found that an automated record offered a number of significant advantages over a paper one. The computerized record improved the legibility and organization of the record due to its ability to output selected portions of the record. It also improved the sharing of information among multiple providers, integrated medical and administrative information, improved procedures for monitoring quality of care, and provided an invaluable data base. The record itself consists of a coded array of provider actions arranged by encounter and by date. Thus, the data can be examined by action, by encounter, or over time. A status report would display the most current information on the requested topics.

In a more recent article, McDonald et al. (1982; 1983) describe additional experience with the use of the Regenstreif Medical Record (RMR) system. This system contains demographics, inpatient, outpatient, and emergency room data, laboratory results, drug usage, and the results of diagnostic studies. The system is reported to function well. They did note, however, that it is likely that some sort of paper record will be required

for the foreseeable future in order to store graphic and signature-containing data which are not easy to code. They felt, moreover, that a computerized record, even a limited one, is both a useful tool in its own right as well as a valuable complement to the paper medical record.

Barnett et al. (1982) observed that the paper record is frequently incomplete or unavailable, poorly organized, and illegible. These factors make recovery of information from such a record difficult if not impossible. COSTAR relies upon a dictionary of all of the terms allowed in the system in order to standardize the individual records. The entries in the directory correspond to provider actions, or codes. COSTAR provides output in the form of a single encounter report, a status report on the patient, and a flowchart showing the temporal variation in the patient's condition and treatment. Individual encounter forms were developed for each clinic or group of clinics to facilitate data capture.

Kuhn and Wiederhold (1981) suggested that future developments of automated medical records would follow two distinct paths. The first would emphasize large, fully integrated systems running on main frame or mini computers. These systems would have the greatest overall utility in their view. The second path would depend on microcomputer based systems for specific records applications which would serve a small group of providers. This latter path is closest to that which the SDTS will apparently follow.

In a recent article, Barnett (1984) reviewed the current status of such systems, with particular emphasis on COSTAR. He

noted that a paper record is able to present information in a fixed format and sequence, and is incapable of selecting particular items of information for display. He recognized that computer based record systems impose a rigidity of structure on the record not found in the paper record, but noted that, in practice, this limitation could be overcome by supplementing the coded entries with narrative on the input document, which is frequently an individual patient encounter form. Reports are available in problem oriented, current status, or flow chart formats.

Aslam (1983) has outlined a series of design criteria for a computerized medical record. He suggested that it must preserve understandability by using a suitable coding system. Aslam observed that much of the data in a paper record can be accommodated within a proper code structure. He further suggested that the majority of the items of free text which do not fit within the coding system are irrelevant both from a clinical and from a statistical perspective. In designing the code structure he suggests that there should be a one to one correspondence between any English phrase and a code, that the code structure should not attempt to group like items, that the code system should be hierarchical as opposed to relational, and that the code structure should be user expandable. Not all of these suggestions suit the needs of the SDTS. It is clear that the SDTS should employ a standardized diagnosis and procedure coding scheme. The 1980 International Classification of Diseases Ninth Revision with Clinical Modifications (ICD-9-CM), which is

being used to capture diagnoses, and the Physicians' Current Procedural Terminology 1985 (Clauser, Fanta, Finkel, & Perlman, 1984), which is being used to capture procedures for the Ambulatory Data Base Portion of the Performance Measurement Study (Misener, 1984b) would be suitable for use with the STDS. The older and much less detailed International Classification of Diseases Ninth Revision (1977) and International Classification of Procedures in Medicine (1978), otherwise known as ICD-9 and ICPM are not sufficiently detailed for this application. Indeed, the IPDS data base should also be converted to ICD-9-CM for compatability with these data.

There are clearly benefits to be derived from the use of automated medical record. These have been discussed above. In the case of the medical portion of the SDTS record, there are the additional potential advantages of sharing data and data input with the Ambulatory Data Base and with the Individual Patient Data System, thus satisfying a number of vital requirements with the same data. Data sharing is a very strong trend in medical computing (Greenes, 1983). These data should serve as the medical data bases for the SDTS. Abstracts of the records in these data bases would be stored on the SDT itself. Suggested record abstract formats, are shown in Annexes F and G. Look-up tables to decode the coded information on the SDT would reside in the SDT-reading/writing computer in a level of detail appropriate to each echelon of medical care. In order to effectively operate the SDTS in a tatical environment, this system will have to be supported by the Theater Army Medical Management Information System, TAMMIS (Ward, 1984). The data elements planned for

inclusion in the Medical Patient Accounting and Reporting (MEDPAR) subsystem of TAMMIS will support the inpatient portion of the SDTS outlined herein, but there are no clinically useful outpatient data elements in any of the 4 TAMMIS subsystems at this time (Theater Army Medical Management Information System, 1984). TAMMIS is scheduled to be fielded during fiscal years 1986 through 1989.

For personnel covered under the proposed Occupational Health Management Information System (OHMIS), some mechanism of sharing data with the data bases supporting the SDTS will need to be developed. The OHMIS is not now compatible with either the Ambulatory Data Base or the Individual Patient Data System (Approach to Standardized Occupational Health Data Collection, 1984; OHMIS MENS, 1984; Working Model, undated).

At present, there is no requirement to systematically report individual patient dental data. Thus, data collected to support the SDTS would serve no other ends. Sweeney (1983) concluded that any consideration of the amount of effort to collect the data to make the dental record portion of the SDTS truly useful could well be entirely out of proportion to the benefit gained. Although these advantages of multiple use of data do not presently accrue from the use of an extensive dental record in the SDTS, it is useful to consider how such data might be handled.

Marcus, Koch, and Gershen (1983a; 1983b) have developed an index of oral health status, and an instrument to capture the necessary data in order to calculate the index. Their

standardized form records data on missing, replaced, decayed, and normal teeth, space closures, or free ends, as well as noting two levels of bone loss for each tooth. This format of dental data presentation would be suited for an automated dental record. It would also permit the calculation of the oral health index for both individuals and units. This capability could be quite valuable in assessing the dental readiness of an entire command, although the present SDTS entry of dental status now allows this function to be accomplished at a reduced level. Pierce, Lindsay, Lautenschlager, Smith, and Harcourt (1982) have also proposed an automated dental coding system. An alternative approach, using an optical mark input form is being developed within the Dental Studies Division of this Activity. It would provide a summary of the patient's dental condition at the time of the encounter. This form is, however, only intended for research purposes. A sample form is contained in Annex I. A useful SDTS dental record would need to contain the details of present dental condition on a tooth by tooth basis, the dental history, the dates, location, and provider performing services, diagnoses and procedures, and space for free text narrative. The use of a SDTS dental record should be given further study within the Dental Corps.

7. Suggested Arrangement of the SDT Record. Based on the preceeding Findings, a suggested arrangement of medical and dental data elements on the Soldier Data Tag was developed.

In an effort to determine the range of information which might be placed in an automated record, the record contents described in Army Regulation 40-66 (15 July 1980) with changes 1 (15 January 1982) and 2 (1 November 1982) were reviewed. The

requirements for the medical warning tag described in Army Regulation 40-15 (1 May 1975) with change 1 (27 September 1975) were also examined. This review suggests that the following data elements, keyed to date, MTF, provider, and register number, would be required in the SDT medical record for both inpatient and outpatient encounters as appropriate: laboratory and radiology findings, dispositions, diagnoses, procedures, cause of injury, subjective and objective examination findings, reports of medical board proceedings, flight clearances, records of personnel reliability program medical actions, exposure to ionizing radiation or chemical agents, eye data and eyewear prescriptions, audiogram results, known allergies, vital signs, notations indicating locations of signature data in hard copy, immunizations, medical warning data, and free text narrative. In order to support these requirements, the authors feel that the SDT medical and dental record should be arranged as follows:

Menu - as in Annex A; will access the following sections:

Emergency Data - as in the SDTS; see Annexes A and B; note that basic emergency, medical warning, and identification data must be on the outside of the SDT.

Administrative Data - as in Annexes B and H (McWilliam, 1984); explicit references to the location of the hard copy record will be in this section.

Physical Data - as in Annexes B and H; should also include a record of exposure to radiation, chemicals, and other occupational hazards.

Medical Record - the default display would be chronologically arranged with most recent entries first, other arrangements would be software selectable; entries as in Annexes F and G; software must permit display of entries keyed on any of the fields; used instead of the Acute Temporary Problems and Master Problem lists in Annexes A and B; the Intake and Medication and Output and Vital Signs screens in Annex B would be given over to this function.

Spectacle Prescription - as in the SDTS; see Annex B.

Immunizations - as in the SDTS, but add MTF and provider codes; see Annex B.

Dental Record - dental status (field width = 1) and date (field width = 6, DDMMYY); will be placed in the body of the record as in Annex B.

Combat and Emergency Record - not in present SDTS; this section will duplicate the DD Form 1380, and will provide space to document treatment within the division; record size = 200 characters. This section would be entirely menu driven. It will be consolidated with the inpatient record and erased at a corps level or higher treatment facility.

Remarks - as in the SDTS; will contain narrative, significant findings, or other crucial information.

8. Overview of the Findings.

Our conclusion is that the SDTS will not be a complete replacement for the paper medical record. For the foreseeable future, such a record will be required to contain signature data, detailed reports, lengthy narratives, and other forms of data which are not easy to code. These items are important, but they are not essential in the majority of patient encounters. In point of fact, they are much more likely to be a distraction to the care provider who is in need of specific data. The SDTS automated record could supplement the paper record, and if more fully developed, could function as a portable portion of an integrated medical information system. The medical portion of the SDTS is clearly justified at this time, if it can be incorporated into an integrated medical information system consisting of an ambulatory data capture system and an improved IPDS. This proposed system could satisfy the needs of the AMEDD for medical information until the TRIMIS Composite Health Care System (CHCS) is fully fielded on a world-wide basis. The projected date for completion of this fielding is during the last quarter of fiscal year 1991 (Kauzlarich, 1984). The SDTS medical record would be of greatest benefit to the AMEDD when ambulatory and inpatient data systems are available AMEDD-wide. An enhanced SDTS dental record may not be justified at this time, as the data collected for such an effort would serve no function beyond supporting the SDTS. This evaluation would change if a requirement for reporting procedure and diagnosis data by individual patient were to develop within the Dental Corps.

Conclusions

1. The automated medical record is an item of technology which has become fully operational in the civilian sector. The SDTS, modified as noted above, can be a valuable source of medical information in both the garrison and the field medical systems. There is presently no basis of civilian experience in automated dental records from which to draw.

2. From an administrative point of view, the automated medical or dental record would be acceptable if it were possible to track back to the individual care provider and MTF. In the case of signatures and detailed narrative information, a note in the automated record which would allow the paper record to be recovered would be adequate. The SDTS system, if implemented as described herein, would improve ambulatory quality assurance efforts and the quality of patient care by upgrading the medical and dental information available within a medical or dental treatment facility.

3. The AMEDD personnel impacts of the SDTS can be placed into two categories, those related to the initial entry of the data into the system, and those related to system updates. The initial entry of medical data will require 15 to 60 minutes per record, depending on complexity. The updates of an individual record could be accomplished without additional workload if these requirements were met through the use of data gathered by other, suitably modified, ambulatory and inpatient data systems. These other systems would have to be adequately supported, however.

4. If the SDTS is operated in concert with both a computerized ambulatory data capture system and a modified IPDS, the equipment

requirements would be as follows: one optical mark reader and associated microcomputer with SDTS receptacle per clinic or group of colocated clinics, one master optical mark reader and associated microcomputer per medical treatment facility, and access to the IPDS inpatient record at one site in each facility, along with an SDTS receptacle and a suitable loading device. All of this equipment, with the exception of the SDTS receptacles and the clinic based optical mark readers and microcomputers, would be planned to support other programs. Interoperability with existing or proposed systems will be difficult at OCONUS MTFs due to the lack of automation at these facilities.

5. If implemented as described herein, the ambulatory data capture to support the SDTS would cost $0.08 per encounter, and would be shared with other programs. The inpatient data input would depend on costs already supported by biometric data requirements. These costs seem to be reasonable in light of the benefits to be gained.

6. The SDTS will not replace the paper health record for garrison purposes in the foreseeable future. The SDTS will be most manageable for the AMEDD if implemented in concert with the programs described elsewhere in this report. An inpatient episode would be recorded as an abstract of the present IPDS record, while outpatient data would be based on an abstract of a computerized ambulatory data capture system record. The development of an automated system to collect dental data should be pursued, although an implementation which would support the SDTS alone may not be justified.

Recommendations

1. That a computerized ambulatory data capture system and the inpatient data base to support the SDTS be implemented, as outlined above.
2. That the Soldier Data Tag portion of the SDTS medical record be implemented for active duty Army personnel when the ambulatory and inpatient data capture systems are in place.
3. That the SDTS and the SDT medical record implementation be extended to OCONUS MTFs upon installation of suitable patient data systems in these facilities.
4. That an automated dental data capture system be designed, and that issues related to its implementation be studied.
5. That liaison be established with the Soldier Support Center to insure that the implemented SDTS meets the information needs of the AMEDD.
6. That liaison be established with the Environmental Hygiene Agency to rationalize the data collection requirements of the SDTS, the Performance Measurement Study, and the OHMIS.
7. That liaison be established with the TAMMIS Project Office, Academy of Health Sciences, to coordinate the requirements of SDTS and TAMMIS.
8. That liaison be established with the TRIMIS Program Office through the TRIMIS Army Project Office to insure that the pending CHCS and the Quality Assurance System are capable of supporting the implemented SDTS.

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Annex A

Tested SDTS Record Screens

Aug Thu 2
10:20 3

HEALTH RECORD

SET-UP

NAME: LACHER, GARY N. RANK: 04 [redacted]

PII Redacted

-MENU-

(E)mergency Data
(A)dministrative Data
(M)edical Record
(S)pectacles Prescription
(I)mmunizations
(D)ental Record
(R)emarks
(L)isting of Entire Health Record
(C)lose Record

MAKE KEY SELECTION C

PII Redacted

PAGE 1 EMERGENCY DATA Aug Thu 25
NAME: LACHER, GARY N. RANK: 04 [redacted] 41
UNIT/HOME STATION:
BLOOD TYPE: B+ SET-UP
KNOWN ALLERGIES:
1.Bee Stings 2.Penicillin Derivatives
3. 4.
5. 6.
7. 8.
9.
MASTER PROBLEM LIST:
1. *Heat Injury
2. Motion Sickness
3.
4. *Insect Bites/Stings (Specify in Remarks)
5.
6.
7.
8.
9.
0.

Press RETURN to CONTINUE:

PAGE 2 EMERGENCY DATA Aug Thu 25
09:07 32

CONTINUING MEDICATIONS:
1 ASA
2
3
4

SET-UP

RELIGIOUS PREFERENCE: P

Do you want to see the list again? (Y/N)N

PII Redacted

ADMINISTRATIVE DATA

NAME: LACHER, GARY N. RANK: O4 [redacted]

SEX: M RACE: Caucasian HT: 73" WT: 153 lbs

UNIT/HOME STATION: HQ/CO A 1ST BN, FT HARRISON, IN

PMOS/SSI: 67H RELIGIOUS PREFERENCE: PROT. NDN

FLYING STATUS: No AERO RATING: FW

NUCLEAR SURETY PROGRAM: No

PHYSICAL PROFILE (PULHES): 111121 as of 240883

PHYSICAL EXAM: Last 0283 Next

SPECIAL DUTY EXAM: Last 0283 Next 0284 Type FLIGHT CL 3

POR DISQUALIFYING CONDITIONS? *Yes

MEDICAL RECORD

NAME: LACHER, GARY N. RANK: O4 [redacted]

PII Redacted

MASTER PROBLEM LIST:

1.*Heat Injury
2.Motion Sickness
3.
4.*Insect Bites/Stings (Specify in Remarks)
5.
6.
7.
8.
9.
10.

CONTINUING MEDICATIONS:

1 ASA
2
3
4

ACUTE TEMPORARY PROBLEMS:

1. R PATELAR BONE BRUISE
2. VIRAL SYNDROME
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.

KNOWN ALLERGIES:

1.Bee Stings
2.Penicillin Derivatives
3.
4.
5.
6.
7.
8.
9.

BLOOD TYPE: A+

PREVIOUS STRESS CASUALTY? Yes

PREVIOUS NBC CASUALTY? No

SPECTACLES PRESCRIPTION

PII Redacted

NAME: LACHER, GARY N. RANK: O4 [redacted]

LEFT EYE: -4.00 -1.00 054 1.25 RIGHT EYE: -4.75 -0.75 134 1.25

INTERPUPILARY DISTANCE: 63/60

FRAME DATA:

Decentration:
Eye Size: 44
Bridge Size: 20
Temple Size: 4.5
Segment Height: 18

MASK INSERTS ISSUED:

M17:
M17A1: 1070
M24:
M25A1: 0883

ABNORMALITIES:

IMMUNIZATIONS

PII Redacted

NAME: LACHER, GARY N. RANK: 04 [redacted]

TYPE	IMMUNIZATION DATE	REIMMUNIZATION DATE
Adenovirus Vaccine	0783	0883
Cholera Vaccine	0783	*
Influenza Vaccine	1082	1083
Meningococcal Vaccine		
Plague Vaccine		
Poliovirus Vaccine (Oral)		
Smallpox Vaccine	0778	0783
Tetanus/Diphtheria Toxoid	0774	0784
Typhoid Vaccine		
Yellow Fever Vaccine		
Sensitivity Tests (TB)	0782	0783
Pap Smear		

REMARKS

NAME: LACHER, GARY N. RANK: 04 [redacted]

REF:POR DISQUALIFICATION- DENTAL CAT CODE 4 (PII Redacted)

REF:HEAT INJURY- HEAT STROKE 050883, INPATIENT 05-070883

REF:STINGS- YELLOW WASP AND CHIGGERS

REF:CHOLERA IMM- REQUIRES INVESTIGATION OF POSSIBLE ALLERGIC REACTION

G:MEDFILE.TXT

04 MC100547731539HQ/

67H!PROT. NDN

2830284LIGHT CL 3 YTF 9929

Annex B

Revised SDTS Record Screens (October 1984)

ADMINISTRATIVE AND PHYSICAL DATA SCREENS

ADMINISTRATIVE DATA

)ME:123456789X123456789X1234567 ER: 12 SEX: 1 DOB: 123456 RACE: 123456789X

)N: 123456789 EMP: 12 RELIGION: 12345 PT_CAT: 123 LAST_UPDATE: 123456

'S: 123456 EAD: 123456 MOS/SSI: 12345 FLIGHT_STAT: 1 RATING: 12345678 NS:1

)IT: 123456789X123456789X123456789X123456789X PHONE: 1234567

'ERGENCY_ADDRESSEE: 123456789X123456789X1 RELATION: 1234567 PHONE: 123456789X

)DRESS: 123456789X123456789X123456789X123456789X HEALTH_RECORD_LOCATION: 1234

PHYSICAL DATA

AME: 123456789X123456789X1234567 GR: 12 SSN: 123456789 DOB: 123456

T 12" WT: 123 BLOOD_TYPE: 123 LAST_PHYSICAL: 1234 NEXT: 1234

LINES: 123456 DATE: 123456 POR_QUAL: 1 (If No, List Condition)

NDITION: 123456789X123456789X123456789X12345 DENTAL_CODE: 1 LAST_EXAM: 123456

DENTIFYING_SCARS,_MARKS_&_CONDITIONS:_(Description_&_Location)

123456789X123456789X123456789X123456789X123456789X123456789X

123456789X123456789X123456789X123456789X123456789X123456789X

123456789X123456789X123456789X123456789X123456789X123456789X

(E- The Administrative Data and the Physical Data will be on separate reens.

- Each field will be free text entry of alphanumeric characters and edit pability is required.
- Some fields will require prompts (between the lines) for entry of the per abreviations or codes. Final determination of which specific data lds and codes remains to be done.
- Each of the lines should be separated by a blank line to reduce clutter) aid the user in locating specific data fields.
- Information on these screens will be utilized to interface with the ater Army Medical Management Information System (TAMMIS), for patient ounting and reporting, and medical regulating functions.

EMERGENCY DATA SCREEN

AME: 123456789X123456789X1234567 GR: 12 SSN: 123456789 DOB: 123456
ASTER PROBLEM LIST: RELIGION: 123456 BLOOD TYPE: 123
. 123456789X123456789X123456789X12345 2. 123456789X123456789X123456789X12345
. 123456789X123456789X123456789X12345 4. 123456789X123456789X123456789X12345
. 123456789X123456789X123456789X12345 6. 123456789X123456789X123456789X12345
ONTINUING MEDICATIONS:
. 123456789X123456789X123456789X12345 2. 123456789X123456789X123456789X12345
. 123456789X123456789X123456789X12345 4. 123456789X123456789X123456789X12345
NOWN ALLERGIES/REACTIONS:
. 123456789X123456789X123456789X12345 2. 123456789X123456789X123456789X12345
. 123456789X123456789X123456789X12345 4. 123456789X123456789X123456789X12345
CUTE TEMPORARY PROBLEMS:
. 123456789X123456789X123456789X123456789X123456789X123456789X123456789X12345
. 123456789X123456789X123456789X123456789X123456789X123456789X123456789X12345
123456789X123456789X123456789X123456789X123456789X123456789X123456789X12345
. 123456789X123456789X123456769X123456789X123456789X123456789X123456789X12345

OTE- Data which would be of use in an emergency treatment situation, or which
ay be an early or apparently acute manifestation of a more serious problem
ill be entered on this page. It will be entered as free text, or by approved
andard coding in the case of allergies and master problems.

- The number of possible characters per field is indicated above. The
cute Temporary Problem lines require automatic wrapping to the next line when
xt extends beyond the margin.
- All fields will take alphanumeric characters

IMMUNIZATIONS SCREEN

NAME: 123456789X123456789X1234567 **GR:** 12 **SSN:** 123456789 **DOB:** 123456

TYPE	SERIES	NUMBER	DATE	NEXT DUE
Influenza Vaccine		1	1234	1234
Smallpox Vaccine		1	1234	1234
Tetanus/Diphtheria Toxoid		1	1234	1234
TB Sensitivity Test		1	1234	1234
Poliovirus Vaccine		1	1234	1234
Meningococcal Vaccine		1	1234	1234
Cholera Vaccine		1	1234	1234
Plague Vaccine		1	1234	1234
Typhoid Vaccine		1	1234	1234
Yellow Fever Vaccine		1	1234	1234
Adenovirus Vaccine		1	1234	1234
PAP Smear		1	1234	1234
SPECIAL: 1. 123456789X123456789X		1	1234	1234
2. 123456789X123456789X		1	1234	1234

NOTE - All fields will accept alphanumeric characters, free text, in the number of characters indicated in each field above

SPECTACLE PRESCRIPTION SCREEN

NAME: 123456789X123456789X1234567 GR: 12 SSN: 123456789 DOB: 123456

LEFT EYE: 12345 12345 123 1234 RIGHT EYE: 12345 12345 123 1234

INTERPUPILARY DISTANCE: 12345
FRAME DATA:
  Decentration: 1234
  Eye Size: 12
  Bridge Size: 12
  Temple Size: 1234
  Segment Height: 12
TASK INSERTS ISSUED:
  M17A1: 1234
  M24: 1234
  M25A1: 1234
  NORMALITIES: 123456789X123456789X123456789X123456789X123456789X

NOTE- All fields will be free to accept alphanumeric characters. The number of allowable characters per field is indicated above. The Left and Right Eye fields each contain 17 characters separated by 3 blank fields of a single space each.

INTAKE AND MEDICATIONS SCREEN
*Bar Coded Entries

NTAKE Time	Med/Fluid-Dose/Volume		Time	Med/Fluid-Dose/Volume
MMDDhhmm	123456789*123456789*12345	16.	MMDDhhmm	123456789*123456789*12345
. MMDDhhmm	123456789*123456789*12345	17.	MMDDhhmm	123456789*123456789*12345
MMDDhhmm	123456789*123456789*12345	18.	MMDDhhmm	123456789*123456789*12345
MMDDhhmm	123456789*123456789*12345	19.	MMDDhhmm	123456789*123456789*12345
MMDDhhmm	123456789*123456789*12345	20.	MMDDhhmm	123456789*123456789*12345
. MMDDhhmm	123456789*123456789*12345	21.	MMDDhhmm	123456789*123456789*12345
. MMDDhhmm	123456789*123456789*12345	22.	MMDDhhmm	123456789*123456789*12345
. MMDDhhmm	123456789*123456789*12345	23.	MMDDhhmm	123456789*123456789*12345
. MMDDhhmm	123456789*123456789*12345	24.	MMDDhhmm	123456789*123456789*12345
0. MMDDhhmm	123456789*123456789*12345	25.	MMDDhhmm	123456789*123456789*12345
1. MMDDhhmm	123456789*123456789*12345	26.	MMDDhhmm	123456789*123456789*12345
2. MMDDhhmm	123456789*123456789*12345	27.	MMDDhhmm	123456789*123456789*12345
3. MMDDhhmm	123456789*123456789*12345	28.	MMDDhhmm	123456789*123456789*12345
4. MMDDhhmm	123456789*123456789*12345	29.	MMDDhhmm	123456789*123456789*12345
5. MMDDhhmm	123456789*123456789*12345	30.	MMDDhhmm	123456789*123456789*12345

OTE- The date fields above will accept numeric characters only, which will be tered by the computer from its clock/calendar automaticly whenever an entry data is made to an adjacent data field via bar code interpretation or text try from keyboard.

- The specific drugs and fluids which will be assigned codes for reading to the data ld remain to be established. The program must allowed to clear text entry of those items well, in alphanumeric characters.
- When the number of possible entries is exceeded (30), the operator must be given a ning and allowed the option of either printing the screen and starting over with #1 or of olling the entries up one line and erasing the oldest entry.

OUTPUT* AND VITAL SIGNS SCREEN

	Time	Type/Volume/Remarks	VITALS: BP	Pulse	Resp	Temp
.	MMDDhhmm	123456789X123456789X123456789X	123/123	12345	12345	12345
.	MMDDhhmm	123456789X123456789X123456789X	123/123	12345	12345	12345
.	MMDDhhmm	123456789X123456789X123456789X	123/123	12345	12345	12345
.	MMDDhhmm	123456789X123456789X123456789X	123/123	12345	12345	12345
.	MMDDhhmm	123456789X123456789X123456789X	123/123	12345	12345	12345
	MMDDhhmm	123456789X123456789X123456789X	123/123	12345	12345	12345
.	MMDDhhmm	123456789X123456789X123456789X	123/123	12345	12345	12345
.	MMDDhhmm	123456789X123456789X123456789X	123/123	12345	12345	12345
.	MMDDhhmm	123456789X123456789X123456789X	123/123	12345	12345	12345
10.	MMDDhhmm	123456789X123456789X123456789X	123/123	12345	12345	12345
11.	MMDDhhmm	123456789X123456789X123456789X	123/123	12345	12345	12345
12.	MMDDhhmm	123456789X123456789X123456789X	123/123	12345	12345	12345
13.	MMDDhhmm	123456789X123456789X123456789X	123/123	12345	12345	12345
14.	MMDDhhmm	123456789X123456789X123456789X	123/123	12345	12345	12345
15.	MMDDhhmm	123456789X123456789X123456789X	123/123	12345	12345	12345

*OUTPUT CATEGORIES
Estimated Blood Loss (EBL)
Urine
NasoGastric/Emesis (NG/E)
Chest
Stool
Sweating

NOTE - The output categories must be automatically entered at the beginning of the field by command or function, ie, with the cursor positioned at the end of the entry and the remaining field space available to accept alphanumeric entry of further free text by the operator.

-All vital signs fields will take alphanumeric characters free text, and their size is indicated by the numbers above.

-When the number of entries possible (15) is exceeded, a warning to the operator must be given, allowing them the option of printing the screen and either starting over from #1 or of scrolling the data up one line and erasing the oldest entry.

REMARKS SCREEN

REMARKS NAME: 123456789X123456789X1234567 QR: 12 SSN: 123456789 DOB: 123456

11.
12.
13.
14.
15.

NOTE- Each line of the remarks screen will be a free text entry format, taking alphanumeric characters from the device keyboard. Each line will be fully available for filling after the line number, and text will "wrap" around to the next line when extending beyond the right margin.

- Cursor control for direct line edit is required, without having to page through each character prior to reaching the information to be edited.

- Simple edit features are required: delete character, and insert character are the minimum.

Annex C

SDTS Diagnoses and Procedure Codes

CODES

FOR THE

SOLDIER DATA CARD SYSTEM

AUTOMATED HEALTH RECORD

PROCEDURES/ALLERGIES

OUTPATIENT

0	WXY1	*Biopsy (Specify in Remarks)
0	WXY2	Cast Application
0	WXY3	Cast Removal
0	WXY4	Diaphragm
0	WXY5	Dietary Counseling
0	WXY6	Dressing Change
0	WXY7	*Immunizations/Injections (Specify in Remarks)
0	WXY8	IUD Inserted
0	WXY9	*Minor Surgery (Specify in Remarks)
0	XY22	Physical Therapy
0	XY33	Pregnancy Determination
0	XY44	Splinting
0	XY55	*Suture (Specify in Remarks)
0	XY66	Suture Removal

ALLERGIC AND ADVERSE REACTIONS

0	9895	Bee Stings
0	E9033	Penicillin Derivatives
0	E9304	Tetracycline
0	E9305	Cephalosporin
0	E9306	Aminoglycoside
0	E9310	Sulfa Medications
0	E9350	Codeine and Other Narcotics
0	E9351	Salicylates

SURGICAL PROCEDURES

MPL	ATP		
0	0	4-430	Wisdom Tooth Extraction
0	0	4-529	Root Canal
0	0	5-062	Thyroidectomy
0	0	5-194	Myringoplasty
0	0	5-436 5-437	Partial Gastrectomy
0	0	5-440	Vagotomy
0	0	5-456	Colectomy
0	0	5-470	Appendectomy
0	0	5-499	Evacuation of Thrombosed Hemorrhoids
0	0	5-511	Cholecystectomy
0	0	5-530	Herniorrhaphy
0	0	5-541	Laparotomy
0	0	5-636	Vasectomy
0	0	5-655 5-683	TAH-BSO
0	0	5-662	BTL
0	0	5-683	TAH
0	0	5-690	Dilation and Curretage
0	0	5-740	C/Section Upper Segment
0	0	5-741	C/Section Lower Segment
0	0	5-782	Bunionectomy
0	0	5-803	Excision of Intervertebral Disc and Laminectomy
0	0	5-861	Mastectomy - Simple
0	0	5-862	Mastectomy Modified Radical
0	0	5-883	I&D of Infected Wound

INJURIES AND ENVIRONMENTAL DISORDERS

MPL	ATP		
0	0	8290	*Simple Fracture (Specify in Remarks)
0	0	8291	*Compound Fracture (Specify in Remarks)
0	0	8398	*Dislocations (Specify in Remarks)
0	0	8449	Knee Sprain
0	0	8450	Ankle Sprain
0	0	8500	Concussion
0	0	8520	Intracranial Hemorrhage
0	0	8890	*Laceration/Open Wound (Specify in Remarks)
0	0	9080	Late Effect of Trauma
0	0	9100	*Insect Bites/Stings (Specify in Remarks)
0	0	9120	*Foreign Body in Tissues (Specify in Remarks)
0	0	9290	*Bruise, Contusion, Crushing (Specify in Remarks)
0	0	9300	Foreign Body in Eye
0	0	9490	*Burn (Specify in Remarks)
0	0	9900	Radiation Injury
0	0	9919	*Cold Injury (Specify in Remarks)
0	0	9929	Heat Injury
0	0	9939	Barotrauma
0	0	9946	Motion Sickness

DIAGNOSES

INFECTIVE AND PARASITIC DISEASES

MPL	ATP		
0	0	0088	Viral Gastroenteritis
0	0	0119	Tuberculosis
0	0	0340	Streptococcal Sore Throat
0	0	0541	Herpes Simplex (Genital)
0	0	0700	Hepatitis A
0	0	0703	Hepatitis B
0	0	0706	Hepatitis non A non B
0	0	0709	Hepatitis ? Etiology
0	0	0750	Infectious Mononucleosis
0	0	0740	Herpangina
0	0	0741	Epidemic Pleuro-dynia
0	0	0781	Viral Warts
0	0	0799	Viral Syndrome
0	0	0820	Rocky Mountain Spotted Fever
0	0	0910	Primary Syphilis
0	0	0980	Gonorrhea (Acute Lower GU Tract)
0	0	0999	Nonspecific Urethritis
0	0	1104	Athlete's Foot
0	0	1274	Enterobiasis (Pinworms)
0	0	1310	Urogenital (Vaginal) Trichomoniasis
0	0	1320	Pediculosis Capitis (Head Louse)
0	0	1321	Pediculosis Corpis (Body Louse)
0	0	1322	Pediculosis Pubis (Pubic Louse)
0	0	1330	Scabies
0	0	1350	Sarcoidosis

MUSCULOSKELETAL, CONNECTIVE TISSUE DISEASES

MPL	ATP		
0	0	7119	Infective Arthritis
0	0	2740 7120	Gouty Arthritis
0	0	2754 7122	Chondracalcinosis due to Pyrophosphate Crystals
0	0	7159	Osteoarthritis
0	0	7161	Traumatic Arthritis
0	0	7177	Chondromalacia Patellae
0	0	7179	Internal Derangement of Knee
0	0	7190	Effusion of Joint
0	0	7200	Ankylosing Spndylitis
0	0	7229	Intervertebral Disc Disorders
0	0	7239	Cervical Spine Syndromes
0	0	7242	Low Back Pain
0	0	7244	Low Back Pain with Radiation
0	0	7260	Adhesive Capsulitis of Shoulder
0	0	7263	Tennis Elbow
0	0	7271	Bunion
0	0	7273	Bursitis
0	0	7274	Ganglion Cyst
0	0	7379	Curvature of Spine
0	0	7295	Pain in Limb
0	0	7300	Acute Osteomyelitis
0	0	7301	Chronic Osteomyelitis
0	0	7330	Osteoporosis
0	0	7331	Stress Fracture
0	0	7336	Costochondritis
0	0	7338	Malunion and Nonunion of Fracture
0	0	7546	Flat Foot

SKIN SUBCUTANEOUS TISSUE DISEASES

MPL	ATP		
0	0	6809	Boil (Carbuncle and Furuncle)
0	0	6819	Cellulitis and Abscesses of Finger and Toe
0	0	6829	Cellulitis and Abscesses, Unspecified Sight
0	0	6830	Acute Lymphadenitis
0	0	6840	Impetigo
0	0	6850	Pilonidal Abscess
0	0	6918	Atopic Dermatitis
0	0	6929	Contact Dermatitis (Unspecified)
0	0	6926	Poison Ivy
0	0	6951	Erythema Multiforme
0	0	6961	Psoriasis
0	0	6963	Pityriasis Rosea
0	0	6989	Pruritis Unspecified
0	0	7000	Corns and Callosities
0	0	7030	Ingrowing Nail
0	0	7061	Acne
0	0	7062	Sebaceous Cyst
0	0	7079	Chronic Ulcer
0	0	7089	Urticaria

FEMALE GENITAL ORGAN DISEASES

MPL	ATP		
0	0	6140	PID
0	0	6160	Cervicitis
0	0	6169	Nonspecific Vaginitis
0	0	6179	Endometriosis
0	0	6182	Genital Prolapse
0	0	6199	Fistulae Involving Female Genital Tract
0	0	6200	Ovarian Cyst
0	0	6201	Corpus Luteum Cyst
0	0	6221	Dysplasia of Cervix
0	0	6252	Mittelschmertz
0	0	6253	Dysmenorrhea
0	0	6260	Amenorrhea
0	0	62541	Premenstrual Tension Syndromes
0	0	6261	Oligomenorrhea
0	0	6262	Excessive or Frequent Menstruation
0	0	6264	Irregular Menstrual Cycle
0	0	6289	Female Infertility

PREGNANCY AND RELATED PROBLEMS

0	0	V220	Normal Pregnancy, EDC_____
0	0	6331	Ectopic Pregnancy
0	0	6349	Spontaneous Abortion
0	0	63592	Legally Induced Abortion
0	0	6424	Mild Preclampsia
0	0	6425	Severe Preclampsia
0	0	6426	Eclampsia
0	0	6411	Placenta Previa
0	0	6412	Abrupted Placenta
0	0	66612	Postpartum Hemorrhage

BREAST DISEASE

MPL	ATP		
0	0	6110	Mastitis or Breast Abscess
0	0	6112	Fissure of Nipple
0	0	6101	Diffuse Cyctic Mastopathy
0	0	6102	Fibroadenoma of Breast

DISEASES OF THE GU SYSTEM

MPL	ATP		
0	0	5809	Acute Glomerulonephritis
0	0	5829	Chronic Glomerulonephritis
0	0	5901	Acute Pyelonephritis
0	0	5920	Urinary Calculus
0	0	5989	Urethral Stricture
0	0	5997	Hematuria
0	0	6000	Enlargement of Prostate
0	0	6010	Acute Prostatitis
0	0	6011	Chronic Prostatitis
0	0	6050	Phimosis and Paraphimosis
0	0	6049	Epididymitis and Orchitis

DISEASES OF THE DIGESTIVE SYSTEM

MPL	ATP		
0	0	0130	Food Poisoning
0	0	5301	Reflux Esophagitis
0	0	5310	Gastric Ulcer
0	0	5320	Duodenal Ulcer
0	0	5350	Acute Gastritis
0	0	5409	Acute Appendicitis
0	0	5509	Inguinal Hernia
0	0	5533	Hiatal Hernia
0	0	5559	Regional Enteritis
0	0	5580	Gastroenteritis Noninfectious
0	0	5560	Ulcerative Colitis
0	0	5609	Intestinal Obstruction
0	0	5621	Diverticulosis
0	0	5641	Irritable Bowel Syndrome
0	0	5650	Anal Fissure
0	0	5651	Anal Fistula
0	0	5679	Peritonitis
0	0	5710	Alcoholic Fatty Liver
0	0	5711	Acute Alcoholic Hepatitis
0	0	5742	Cholelithiasis
0	0	5750	Acute Cholecystitis
0	0	5770	Acute Pancreatitis
0	0	5789	Gastrointestinal Hemorrhage
0	0	5660	Abscess of Anal Rectal Region

CIRCULATORY SYSTEM DISEASES

MPL	ATP		
0	0	3989	Rheumatic Fever/Heart Disease
0	0	4011	Essential Hypertension
0	0	4100	Acute Myocardial Infarction
0	0	4120	Old Myocardial Infarction
0	0	4130	Angina Pectoris
0	0	4140	Atherosclerotic Heart Disease
0	0	4151	Pulmonary Embolism
0	0	42091	Acute Pericarditis
0	0	4210	Bacterial Endocarditis
0	0	4240	Mitral Valve Disorders
0	0	4241	Aortic Valve Disorder
0	0	4242	Tricuspid Valve Disorders
0	0	3242	Pulmonary Embolism
0	0	4273	Atrial Fibrillation/Flutter
0	0	42769	Premature Contractions (Ventricular)
0	0	4270	Paroxysmal Atrial Tachycardia
0	0	4293	Cardiomegaly
0	0	4350	Transient Ischemic Attack
0	0	4430	Raynaud's Syndrome
0	0	4439	Intermittent Claudication
0	0	4519	Thrombophlebitis
0	0	4549	Varicose Veins
0	0	4550	Hemorrhoids

DISEASES OF THE RESPIRATORY SYSTEM

MPL	ATP		
0	0	4600	Common Cold
0	0	4619	Acute Sinusitis
0	0	4620	Acute Pharyngitis
0	0	4630	Acute Tonsillitis
0	0	4640	Acute Laryngitis
0	0	4660	Acute Bronchitis
0	0	4700	Deviated Nasal Septum
0	0	4710	Nasal Polyps
0	0	4770	Allergic Rhinitis (Hay Fever)
0	0	4800	Viral Pneumonia
0	0	4810	Pneumococcal Pneumonia
0	0	4828	Other Bacterial Pneumonia
0	0	4860	Pneumnia, Organism Unspecified
0	0	4871	Influenza
0	0	4919	Chronic Bronchitis
0	0	4920	Emphysema
0	0	4939	Asthma
0	0	5119	Pleurisy
0	0	5120	Pneumothorax
0	0	5180	Atelectasis

EYE DISEASES

MPL	ATP		
0	0	3619	Retinal Detachments
0	0	3649	Iritis (Unspecified)
0	0	3651	Open-Angel Glaucoma
0	0	3652	Angle-Closure Glaucoma
0	0	3669	Cataract (Unspecified)
0	0	3682	Diplopia
0	0	3684	Visual Field Defects
0	0	3685	Color Vision Defects
0	0	3686	Night Blindness
0	0	3699	Visual Loss (Unspecified)
0	0	3700	Corneal Ulcer
0	0	0544 3704	Herpes Keratitis
0	0	3719	Corneal Abrasion
0	0	3720	Acute Conjunctivitis
0	0	3724	Ptergyium
0	0	3731	Stye
0	0	3732	Chalazion

EAR DISEASES

0	0	3801	Otitis Externa
0	0	3810	Acute Serous Otitis Media
0	0	3811	Chronic Serous Otitis Media
0	0	3819	Eustachian Tube Disorder
0	0	3820	Acute Suppurative Otitis Media
0	0	3842	Perforation of Tympanic Membrane
0	0	3899	Deafness (Any Hearing Loss)
0	0	3961	Vertigo (Pheripheral)
0	0	3963	Labyrinthitis

BLOOD DISEASES

MPL	ATP		
0	0	2800	Iron Deficiency Anemia
0	0	2825	Sickle Cell Trait

NERVOUS SYSTEM DISEASES

MPL	ATP		
0	0	3209	Bacterial Meningitis
0	0	3217 0479	Aseptic Meningitis
0	0	3450	Petit Mal
0	0	3451	Generalized Convulsive Epilepsy
0	0	3455	Partial or Psychomotor Epilepsy
0	0	3469	Migraine HA
0	0	3501	Trigeminal Neuralgia
0	0	3540	Carpal Tunnel Syndrome
0	0	3551	Meralgia Paraesthetica

MENTAL DISORDERS

MPL	ATP		
0	0	3000	Anxiety Disorder
0	0	3001	Hysteria
0	0	3002	Phobic State
.0	0	3004	Depression (Neurotic)
0	0	3070	Stammering and Stuttering
0	0	3071	Anorexia Nervosa
0	0	3090	Brief Depressive Reaction
0	0	3099	Adjustment Reaction

BENIGN NEOPLASMS

MPL	ATP		
0	0	214	Lipoma
0	0	218	Fibroid Uterus

MALIGNANCIES

MPL		
0	1539	Colon Cancer
0	1629	Lung Cancer
0	1749	Breast Cancer
0	1991	Malignant Neoplasms
0	2019	Hodgkin's Disease
0	2029	Lymphoma
0	2080	Leukemia

DRUG ABUSE

MPL		
0	30300	Alcoholism
0	3050F	Cannabis User
0	3050K	Smoker of Tobacco
0	3054	Acute Alcohol Abuse

ENDOCRINE, NUTRITIONAL, METABOLIC DISEASES

MPL	ATP		
0	0	2409	Goiter
0	0	2419	Nontoxic Nodular Goiter
0	0	2429	Thyrotoxicosis
0	0	2449	Hypothydroidism
0	0	2459	Thyroiditis
0	0	2500	Diabetes Mellitus (Adult Type)
0	0	2501	Diabetes Mellitus (Juvenile Type)
0	0	2720	Hypercholesterolemia
0	0	2721	Hypertriglyceridemia
0	0	2722	Mixed Hyperlipidemia
0	0	2723	Hyperchylomicronemia
0	0	2749	Gout
0	0	2765	Volume Depletion (Dehydration)
0	0	2768	Hypopotassemia
0	0	2780	Obesity

SIGNS AND SYMPTONS

GENERAL

MPL	ATP		
0	0	7808	Excessive Sweating
0	0	7806	Fever of Undetermined Cause
0	0	7821	Rash and Other Nonspecific Skin Eruption
0	0	7832	Weight Loss
0	0	7834	Lack of Expected Normal Physiological Development
0	0	7833	Feeding Problem, Baby or Elderly
0	0	7807	Malaise, Fatigue, Tiredness
0	0	7822	Mass and Localized Swelling NOS/NYD

GASTROINTESTINAL SYSTEM AND ABDOMEN

MPL	ATP		
0	0	7830	Anorexia
0	0	7870	Nausea/Vomiting
0	0	7871	Heartburn
0	0	7873	Flatulence, Bloating, Eructation
0	0	7890	Abdominal Pain
0	0	7891	Hepatomegaly/Splenomegaly

RESPIRATORY SYSTEM

MPL	ATP		
0	0	7847	Epistaxis
0	0	7860	Dyspenea
0	0	7862	Cough
0	0	7863	Hemoptysis

GENITOURINARY SYSTEM

MPL	ATP		
0	0	7881	Dysuria
0	0	7883	Enuresis
0	0	7884	Frequency of Urination

CARDIOVASCULAR AND LYMPHATIC SYSTEM

MPL	ATP		
0	0	7802	Syncope, Faint, Blackout
0	0	7823	Edema
0	0	7851	Palpitations
0	0	7852	Heart Murmur Nec, NYD
0	0	7856	Enlarged Lymph Nodes, Not Infected
0	0	7865	Chest Pain

CENTRAL AND PERIPHERAL NERVOUS SYSTEM

MPL	ATP		
0	0	7803	Convulsions
0	0	7804	Dizziness and Giddiness
0	0	7810	Abnormal Involuntary Movement
0	0	7820	Disturbance of Sensation
0	0	7840	Headache
0	0	7845	Disturbance of Speech

DISPOSITION

0	ABC1	RETURN TO DUTY
0	ABC2	CONSULT
0	ABC3	CHAMPUS REFERRAL
0	ABC4	ADMITTED
0	ABC5	QUARTERS
0	ABC6	LIMITED DUTY

Annex D

SDTS Encounter Form

DATE:

PHYSICIAN'S NAME AND SIGNATURE:

SIGNATURE:

✓ ALLERGIC AND ADVERSE REACTIONS

- ☐ 9905 BEE STINGS
- ☐ E9033 PENICILLIN DERIVATIVES
- ☐ E9301 TETRACYCLINE
- ☐ E9305 CEPHALOSPORIN
- ☐ E9306 AMINOGLYCOSIDE
- ☐ E9310 SULFA MEDICATIONS
- ☐ E9350 CODEINE AND OTHER NARCOTICS
- ☐ E9351 SALICYLATES

MPL ATP PROCEDURES/ALLERGIES-OUTPATIENT

- ☐ ☐ WXY1 *BIOPSY (SPECIFY IN REMARKS)
- ☐ ☐ WXY2 CAST APPLICATION
- ☐ ☐ WXY3 CAST REMOVAL
- ☐ ☐ WXY4 DIAPHRAGM
- ☐ ☐ WXY5 DIETARY COUNSELING
- ☐ ☐ WXY6 DRESSING CHANGE
- ☐ ☐ WXY7 *IMMUNIZATIONS/INJECTIONS (SPECIFY IN REMARKS)
- ☐ ☐ WXY8 IUD INSERTED
- ☐ ☐ WXY9 *MINOR SURGERY (SPECIFY IN REMARKS)
- ☐ ☐ XY22 PHYSICAL THERAPY
- ☐ ☐ XY33 PREGNANCY DETERMINATION
- ☐ ☐ XY44 SPLINTING
- ☐ ☐ XY55 *SUTURE (SPECIFY IN REMARKS)
- ☐ ☐ XY66 SUTURE REMOVAL

SURGICAL PROCEDURES

- ☐ ☐ 4-430 WISDOM TOOTH EXTRACTION
- ☐ ☐ 4-529 ROOT CANAL
- ☐ ☐ 5-082 TMYROIDECTOMY
- ☐ ☐ 5-194 MYRINGO PLASTY
- ☐ ☐ 5-436 PARTIAL GASTRECTOMY
- ☐ ☐ 5-440 VAGOTOMY
- ☐ ☐ 5-456 COLECTOMY
- ☐ ☐ 5-470 APPENDECTOMY
- ☐ ☐ 5-498 EVACUATION OF THROMBOSED HEMORRHOIDS
- ☐ ☐ 5-511 CHOLECYSTECTOMY
- ☐ ☐ 5-530 HERNIORRHAPHY
- ☐ ☐ 5-541 LAPAROTOMY
- ☐ ☐ 5-636 VASECTOMY
- ☐ ☐ 5-655 TAH BSO
- ☐ ☐ 5-662 BTL
- ☐ ☐ 5-683 TAH
- ☐ ☐ 5-690 DILATION AND CURRETAGE
- ☐ ☐ 5-740 C-SECTION UPPER SEGMENT
- ☐ ☐ 5-741 C-SECTION LOWER SEGMENT
- ☐ ☐ 5-782 BUNIONECTOMY
- ☐ ☐ 5-803 EXCISION OF INTERVERTEBRAL DISC & LAMINECTOMY
- ☐ ☐ 5-861 MASTECTOMY SIMPLE
- ☐ ☐ 5-862 MASTECTOMY MODIFIED RADICAL
- ☐ ☐ 5-883 I&D OF INFECTED WOUND

INJURIES AND ENVIRONMENTAL DISORDERS

- ☐ ☐ 8290 *SIMPLE FRACTURE (SPECIFY IN REMARKS)
- ☐ ☐ 8291 *COMPOUND FRACTURE (SPECIFY IN REMARKS)
- ☐ ☐ 8396 *DISLOCATIONS (SPECIFY IN REMARKS)
- ☐ ☐ 8449 KNEE SPRAIN
- ☐ ☐ 8450 ANKLE SPRAIN
- ☐ ☐ 8500 CONCUSSION
- ☐ ☐ 8520 INTRACRANIAL HEMORRHAGE
- ☐ ☐ 8890 *LACERATION/OPEN WOUND (SPECIFY IN REMARKS)
- ☐ ☐ 9080 LATE EFFECT OF TRAUMA
- ☐ ☐ 9100 *INSECT BITES/STINGS (SPECIFY IN REMARKS)
- ☐ ☐ 9170 *FOREIGN BODY IN TISSUES (SPECIFY IN REMARKS)
- ☐ ☐ 9290 *BRUISE CONTUSION CRUSHING (SPECIFY IN REMARKS)
- ☐ ☐ 9300 FOREIGN BODY IN EYE

MPL ATP INJURIES & ENVIRON. DISORDERS (cont'd)

- ☐ ☐ 9400 *BURN (SPECIFY IN REMARKS)
- ☐ ☐ 9900 RADIATION INJURY
- ☐ ☐ 9919 *COLD INJURY (SPECIFY IN REMARKS)
- ☐ ☐ 9929 HEAT INJURY
- ☐ ☐ 9939 BAROTRAUMA
- ☐ ☐ 9946 MOTION SICKNESS

DIAGNOSIS-INFECTIVE AND PARASITIC DISEASES

- ☐ ☐ 0088 VIRAL GASTROENTERITIS
- ☐ ☐ 0110 TUBERCULOSIS
- ☐ ☐ 0340 STREPTO COCCAL SORE THROAT
- ☐ ☐ 0541 HERPES SIMPLEX (GENITAL)
- ☐ ☐ 0700 HEPATITIS A
- ☐ ☐ 0703 HEPATITIS B
- ☐ ☐ 0706 HEPATITIS NON A NON B
- ☐ ☐ 0709 HEPATITIS? ETIOLOGY
- ☐ ☐ 0750 INFECTIOUS MONONUCLEOSIS
- ☐ ☐ 0740 HERPANGINA
- ☐ ☐ 0741 EPEDEMIC PLEURO-DYNIA
- ☐ ☐ 0781 VIRAL WARTS
- ☐ ☐ 0799 VIRAL SYNDROME
- ☐ ☐ 0820 ROCKY MOUNTAIN SPOTTED FEVER
- ☐ ☐ 0910 PRIMARY SYPHILIS
- ☐ ☐ 0980 GONORRHEA (ACUTE LOWER GU TRACT)
- ☐ ☐ 0988 NONSPECIFIC URETHRITIS
- ☐ ☐ 1184 ATHLETE'S FOOT
- ☐ ☐ 1274 ENTEROBIASIS (PINWORMS)
- ☐ ☐ 1310 UROGENITAL (VAGINAL) TRICHOMONASIS
- ☐ ☐ 1320 PEDICULOSIS CAPITIS (HEAD LOUSE)
- ☐ ☐ 1321 PEDICULOSIS CORPIS (BODY LOUSE)
- ☐ ☐ 1322 PEDICULOSIS PUBIS (PUBIC LOUSE)
- ☐ ☐ 1330 SCABIES
- ☐ ☐ 1350 SARCOIDOSIS

CENTRAL & PERIPHERAL NERVOUS SYSTEM

- ☐ ☐ 7803 CONVULSIONS
- ☐ ☐ 7804 DIZZINESS AND GIDDINESS
- ☐ ☐ 7810 ABNORMAL INVOLUNTARY MOVEMENT
- ☐ ☐ 7820 DISTURBANCE OF SENSATION
- ☐ ☐ 7840 HEADACHE
- ☐ ☐ 7845 DISTURBANCE OF SPEECH

NERVOUS SYSTEM DISEASES

- ☐ ☐ 3208 BACTERIAL MENINGITIS
- ☐ ☐ 3217 ASEPTIC MENINGITIS
- ☐ ☐ 3450 PETIT MAL
- ☐ ☐ 3451 GENERALIZED CONVULSIVE EPILEPSY
- ☐ ☐ 3455 PARTIAL OR PSYCHOMOTOR EPILEPSY
- ☐ ☐ 3480 MIGRAINE HA
- ☐ ☐ 3501 TRIGEMINAL NEURALGIA
- ☐ ☐ 3540 CARPAL TUNNEL SYNDROME
- ☐ ☐ 3551 MERALGIA PARAESTHETICA

MENTAL DISORDERS

- ☐ ☐ 3000 ANXIETY DISORDER
- ☐ ☐ 3001 HYSTERIA
- ☐ ☐ 3002 PHOBIC STATE
- ☐ ☐ 3004 DEPRESSION (NEUROTIC)
- ☐ ☐ 3070 STAMMERING AND STUTTERING
- ☐ ☐ 3071 ANOREXIA NERVOSA
- ☐ ☐ 3080 BRIEF DEPRESSIVE REACTION
- ☐ ☐ 3099 ADJUSTMENT REACTION

EYE DISEASES

- ☐ ☐ 3619 RETINAL DETACHMENTS
- ☐ ☐ 3649 IRITIS (UNSPECIFIED)
- ☐ ☐ 3651 OPEN ANGEL GLAUCOMA
- ☐ ☐ 3652 ANGLE-CLOSURE GLAUCOMA
- ☐ ☐ 3669 CATARACT (UNSPECIFIED)
- ☐ ☐ 3682 DIPLOPIA
- ☐ ☐ 3684 VISUAL FIELD DEFECTS
- ☐ ☐ 3685 COLOR VISION DEFECTS
- ☐ ☐ 3686 NIGHT BLINDNESS
- ☐ ☐ 3699 VISUAL LOSS (UNSPECIFIED)
- ☐ ☐ 3700 CORNEAL ULCER
- ☐ ☐ 3704 HERPES KERATITIS
- ☐ ☐ 3719 CORNEAL ABRASION
- ☐ ☐ 3720 ACUTE CONJUNCTIVITIS
- ☐ ☐ 3724 PIERGYIUM
- ☐ ☐ 3731 STYE
- ☐ ☐ 3732 CHALAZION

EAR DISEASES

- ☐ ☐ 3801 OTITIS EXTERNA
- ☐ ☐ 3810 ACUTE SEROUS OTITIS MEDIA
- ☐ ☐ 3811 CHRONIC SEROUS OTITIS MEDIA
- ☐ ☐ 3819 EUSTACHIAN TUBE DISORDER
- ☐ ☐ 3820 ACUTE SUPPURATIVE OTITIS MEDIA
- ☐ ☐ 3842 PERFORATION OF TYMPANIC MEMBRANE
- ☐ ☐ 3899 DEAFNESS (ANY HEARING LOSS)
- ☐ ☐ 3861 VERTIGO (PERIPHERAL)
- ☐ ☐ 3863 LABRYINTHITIS

DISEASES of the RESPIRATORY SYSTEM

- ☐ ☐ 4600 COMMON COLD
- ☐ ☐ 4619 ACUTE SINUSITIS
- ☐ ☐ 4620 ACUTE PHARYNGITIS
- ☐ ☐ 4630 ACUTE TONSILLITIS
- ☐ ☐ 4640 ACUTE LARYNGITIS
- ☐ ☐ 4660 ACUTE BRONCHITIS
- ☐ ☐ 4700 DEVIATED NASAL SEPTUM
- ☐ ☐ 4710 NASAL POLYPS
- ☐ ☐ 4770 ALLERGIC RHINITIS (HAY FEVER)
- ☐ ☐ 4800 VIRAL PNEUMONIA
- ☐ ☐ 4810 PNEUMOCOCCAL PNEUMONIA
- ☐ ☐ 4828 OTHER BACTERIAL PNEUMONIA
- ☐ ☐ 4880 PNEUMONIA, ORGANISM UNSPECIFIED
- ☐ ☐ 4871 INFLUENZA
- ☐ ☐ 4919 CHRONIC BRONCHITIS
- ☐ ☐ 4920 EMPHYSEMA
- ☐ ☐ 4930 ASTHMA
- ☐ ☐ 5119 PLEURISY
- ☐ ☐ 5120 PNEUMOTHORAX
- ☐ ☐ 5180 ATELECTASIS

RESPIRATORY SYSTEM

- ☐ ☐ 7847 EPISTAXIS
- ☐ ☐ 7860 DYSPNEA
- ☐ ☐ 7862 COUGH
- ☐ ☐ 7863 HEMOPTYSIS

CIRCULATORY SYSTEM DISEASES

- ☐ ☐ 3980 RHEUMATIC FEVER/HEART DISEASE
- ☐ ☐ 4011 ESSENTIAL HYPERTENSION
- ☐ ☐ 4100 ACUTE MYOCARDIAL INFARCTION
- ☐ ☐ 4120 OLD MYOCARDIAL INFARCTION
- ☐ ☐ 4130 ANGINA PECTORIS
- ☐ ☐ 4140 ATHEROSCLEROTIC HEART DISEASE
- ☐ ☐ 4151 PULMONARY EMBOLISM
- ☐ ☐ 42681 ACUTE PERICARDITIS
- ☐ ☐ 4210 BACTERIAL ENDOCARDITIS
- ☐ ☐ 4240 MITRAL VALVE DISORDERS
- ☐ ☐ 4241 AORTIC VALVE DISORDER
- ☐ ☐ 4242 TRICUSPID VALVE DISORDERS
- ☐ ☐ 3242 PULMONARY EMBOLISM
- ☐ ☐ 4273 ATRIAL FIBRILLATION/FLUTTER
- ☐ ☐ 42789 PREMATURE CONTRACTIONS (VENTRICULAR)
- ☐ ☐ 4270 PAROXYSMAL ATRIAL TACHYCARDIA
- ☐ ☐ 4293 CARDIOMEGALY
- ☐ ☐ 4350 TRANSIENT ISCHEMIC ATTACK
- ☐ ☐ 4430 RAYNAUD'S SYNDROME
- ☐ ☐ 4439 INTERMITTENT CLAUDICATION
- ☐ ☐ 4519 THROMBOPHLEBITIS

RPL	ATP	CIRCULATORY SYSTEM DISEASES (cont'd)
☐	☐	4549 VARICOSE VEINS
☐	☐	4550 HEMORRHOIDS

CARDIOVASCULAR & LYMPHATIC SYSTEM

☐	☐	7802 SYNCOPE FAINT BLACKOUT
☐	☐	7823 EDEMA
☐	☐	7851 PALPITATIONS
☐	☐	7852 HEART MURMUR NEC NYD
☐	☐	7856 ENLARGED LYMPH NODES NOT INFECTED
☐	☐	7865 CHEST PAIN

BLOOD DISEASES

☐	☐	2800 IRON DEFICIENCY ANEMIA
☐	☐	2825 SICKLE CELL TRAIT

DISEASES of the DIGESTIVE SYSTEM

☐	☐	0130 FOOD POISONING
☐	☐	5301 REFLUX ESOPHAGITIS
☐	☐	5310 GASTRIC ULCER
☐	☐	5320 DUODENAL ULCER
☐	☐	5350 ACUTE GASTRITIS
☐	☐	5409 ACUTE APPENDICITIS
☐	☐	5509 INGUINAL HERNIA
☐	☐	5533 HIATAL HERNIA
☐	☐	5559 REGIONAL ENTERITIS
☐	☐	5580 GASTROENTERITIS NONINFECTIOUS
☐	☐	5580 ULCERATIVE COLITIS
☐	☐	5809 INTESTINAL OBSTRUCTION
☐	☐	5821 DIVERTICULOSIS
☐	☐	5841 IRRITABLE BOWEL SYNDROME
☐	☐	5850 ANAL FISSURE
☐	☐	5851 ANAL FISTULA
☐	☐	5879 PERITONITIS
☐	☐	5710 ALCOHOLIC FATTY LIVER
☐	☐	5711 ACUTE ALCOHOLIC HEPATITIS
☐	☐	5742 CHOLELITHIASIS
☐	☐	5750 ACUTE CHOLECYSTITIS
☐	☐	5770 ACUTE PANCREATITIS
☐	☐	5788 GASTROINTESTINAL HEMORRHAGE
☐	☐	5880 ABSCESS OF ANAL RECTAL REGION

GASTROINTESTINAL SYSTEM & ABDOMEN

☐	☐	7830 ANOREXIA
☐	☐	7870 NAUSEA/VOMITING
☐	☐	7871 HEARTBURN
☐	☐	7873 FLATULENCE, BLOATING, ERUCTATION
☐	☐	7880 ABDOMINAL PAIN
☐	☐	7881 HEPATOMEGALY/SPLENOMEGALY

ENDOCRINE, NUTRITIONAL, METABOLIC DISEASES

☐	☐	2409 GOITER
☐	☐	2419 NONTOXIC NODULAR GOITER
☐	☐	2429 THYROTOXICOSIS
☐	☐	2449 HYPOTHYROIDISM
☐	☐	2458 THYROIDITIS
☐	☐	2500 DIABETES MELLITUS (ADULT TYPE)
☐	☐	2501 DIABETES MELLITUS (JUVENILE TYPE)
☐	☐	2720 HYPERCHOLESTEROLEMIA
☐	☐	2721 HYPERTRIGLYCERIDEMIA
☐	☐	2722 MIXED
☐	☐	2723 HYPERCHYLOMICRONEMIA
☐	☐	2749 GOUT
☐	☐	2765 VOLUME DEPLETION (DEHYDRATION)
☐	☐	2768 HYPOPOTASSEMIA
☐	☐	2780 OBESITY

DISEASES of the GU SYSTEM

☐	☐	5800 ACUTE GLOMERULONEPHRITIS
☐	☐	5829 CHRONIC GLOMERULONEPHRITIS
☐	☐	5881 ACUTE PYELONEPHRITIS
☐	☐	5820 URINARY CALCULUS
☐	☐	5880 URETHRAL STRICTURE
☐	☐	5997 HEMATURIA
☐	☐	6080 ENLARGEMENT OF PROSTATE
☐	☐	6010 ACUTE PROSTATITIS
☐	☐	6011 CHRONIC PROSTATITIS

RPL	ATP	DISEASES of the GU SYSTEM (cont'd)
☐	☐	6050 PHIMOSIS AND PARAPHIMOSIS
☐	☐	6049 EPIDIDYMITIS AND ORCHITIS

GENITO URINARY SYSTEM

☐	☐	7881 DYSURIA
☐	☐	7883 ENURESIS
☐	☐	7884 FREQUENCY OF URINATION

FEMALE GENITAL ORGAN DISEASES

☐	☐	6140 PID
☐	☐	6160 CERVICITIS
☐	☐	6189 NONSPECIFIC VAGINITIS
☐	☐	6179 ENDOMETRIOSIS
☐	☐	6182 GENITAL PROLAPSE
☐	☐	6199 FISTULAE INVOLVING FEMALE GENITAL TRACT
☐	☐	6200 OVARIAN CYST
☐	☐	6201 CORPUS LUTEUM CYST
☐	☐	6221 DYSPLASIA OF CERVIX
☐	☐	6252 MITTELSCHMERTZ
☐	☐	6253 DYSMENORRHEA
☐	☐	6260 AMENORRHEA
☐	☐	62541 PREMENSTRUAL TENSION SYNDROMES
☐	☐	6261 OLIGOMENORRHEA
☐	☐	6262 EXCESSIVE OR FREQUENT MENSTRUATION
☐	☐	6264 IRREGULAR MENSTRUAL CYCLE
☐	☐	6280 FEMALE INFERTILITY

BREAST DISEASE

☐	☐	6110 MASTITIS OF BREAST ABSCESS
☐	☐	6112 FISSURE OF NIPPLE
☐	☐	6101 DIFFUSE CYCTIC MASTOPATHY
☐	☐	6102 FIBROADENOMA OF BREAST

PREGNANCY & RELATED PROBLEMS

☐	☐	V220 NORMAL PREGNANCY, EDC
☐	☐	6331 ECTOPIC PREGNANCY
☐	☐	6340 SPONTANEOUS ABORTION
☐	☐	63502 LEGALLY INDUCED ABORTION
☐	☐	6424 MILD PRECLAMPSIA
☐	☐	6425 SEVERE PRECLAMPSIA
☐	☐	6426 ECLAMPSIA
☐	☐	6411 PLACENTA PREVIA
☐	☐	6412 ABRUPTED PLACENTA
☐	☐	66812 POST PARTUM HEMORRHAGE

MUSCULOSKELETAL, CONNECTIVE TISSUE DISEASES

☐	☐	7119 INFECTIVE ARTHRITIS
☐	☐	7129 GOUTY ARTHRITIS
☐	☐	7122 CHONDROCALCINOSIS DUE TO PYROPHOSPHATE
☐	☐	7150 OSTEOARTHRITIS
☐	☐	7161 TRAUMATIC ARTHRITIS
☐	☐	7177 CHONDROMALACIA PATELLAE
☐	☐	7179 INTERNAL DERANGEMENT OF KNEE
☐	☐	7189 EFFUSION OF JOINT
☐	☐	7209 ANKYLOSING SPONDYLITIS
☐	☐	7220 INTERVERTABRAL DISC DISORDERS
☐	☐	7230 CERVICAL SPINE SYNDROMES
☐	☐	7242 LOW BACK PAIN
☐	☐	7244 LOW BACK PAIN WITH RADIATION
☐	☐	7260 ADHESIVE CAPSULITIS OF SHOULDER
☐	☐	7263 TENNIS ELBOW
☐	☐	7271 BURSA
☐	☐	7273 BURSITIS
☐	☐	7274 GANGLION CYST
☐	☐	7379 CURVATURE OF SPINE
☐	☐	7295 PAIN IN LIMB
☐	☐	7300 ACUTE OSTEOMYELITIS
☐	☐	7301 CHRONIC OSTEOMYELITIS
☐	☐	7330 OSTEOPOROSIS
☐	☐	7331 STRESS FRACTURE
☐	☐	7336 COSTOCHONDRITIS
☐	☐	7338 MALUNION AND NONUNION OF FRACTURE
☐	☐	7548 FLAT FOOT

SKIN SUBCUTANEOUS TISSUE DISEASE

☐	☐	6800 BOIL (CARBUNCLE AND FURUNCLE)
☐	☐	6819 CELLULITIS AND ABSCESSES OF FINGER AND TOE

RPL	ATP	SKIN SUBCUTANEOUS TISSUE DISEASE (cont'd)
☐	☐	6829 CELLULITIS AND ABSCESSES UNSPECIFIED SIGHT
☐	☐	6830 ACUTE LYMPHADENITIS
☐	☐	6840 IMPETIGO
☐	☐	6850 PILONIDAL ABSCESS
☐	☐	6918 ATOPIC DERMATITIS
☐	☐	6929 CONTACT DERMATITIS UNSPECIFIED
☐	☐	6926 POISON IVY
☐	☐	6951 ERYTHEMA MULTIFORME
☐	☐	6961 PSORIASIS
☐	☐	6963 PITYRIASIS ROSEA
☐	☐	6989 PRURITIS UNSPECIFIED
☐	☐	7000 CORNS AND CALLOSITIES
☐	☐	7030 INGROWING NAIL
☐	☐	7061 ACNE
☐	☐	7062 SEBACEOUS CYST
☐	☐	7079 CHRONIC ULCER
☐	☐	7089 URTICARIA

BENIGN NEOPLASMS

☐	☐	214 LIPOMA
☐	☐	218 FIBROID UTERUS

MALIGNANCIES

☐	☐	1539 COLON CANCER
☐	☐	1629 LUNG CANCER
☐	☐	1749 BREAST CANCER
☐	☐	1991 MALIGNANT NEOPLASMS
☐	☐	2019 HODGKIN'S DISEASE
☐	☐	2029 LYMPHOMA
☐	☐	2880 LEUKEMIA

DRUG ABUSE

☐	☐	30300 ALCOHOLISM
☐	☐	30901 CANNABIS USER
☐	☐	30560 SMOKER OF TOBACCO
☐	☐	3064 ACUTE ALCOHOL ABUSE

SIGNS AND SYMPTOMS - GENERAL

☐	☐	7880 EXCESSIVE SWEATING
☐	☐	7806 FEVER OF UNDETERMINED CAUSE
☐	☐	7821 RASH AND OTHER NONSPECIFIC SKIN ERUPTION
☐	☐	7832 WEIGHT LOSS
☐	☐	7834 LACK OF EXPECTED NORMAL PHYSIOLOGICAL DEVELOPMENT
☐	☐	7833 FEEBING PROBLEM, BABY OR ELDERLY
☐	☐	7807 MALAISE, FATIGUE, TIREDNESS
☐	☐	7822 MASS AND LOCALIZED SWELLING NOS/NYD

DISPOSITION

☐		ABC 1 RETURN TO DUTY
☐		ABC 2 CONSULT
☐		ABC 3 CHAMPUS REFERRAL
☐		ABC 4 ADMITTED
☐		ABC 5 QUARTERS
☐		ABC 6 LIMITED DUTY

Rx

REMARKS

Annex E

Ambulatory Care Data Base Encounter Form

(Pediatrics)

NCS Trans-Optic EB01 11825 321

PEDIATRIC

OUTPATIENT ENCOUNTER FORM (TEST)

USE NO. 2 PENCIL ONLY

INSTRUCTIONS

- Please use No. 2 Pencil only.
- Fill ovals completely.
- Erase mistakes cleanly.
- Do not make stray marks on this form.

TODAY'S DATE

DAY	MONTH	YEAR
	JAN	
	FEB	
	MAR	0
	APR	1
	MAY	2
	JUN	3
	JUL	4
	AUG	5
	SEP	6
	OCT	7
	NOV	8
	DEC	9

SPONSORS SSAN

PATIENT

PATIENT INFO

FMP

BIRTHDATE: DAY, MO., YR.

ADMINISTRATION

PLACE OF VISIT

- [ ] CLINIC/OFFICE
- [ ] WARD
- [ ] TELEPHONE
- [ ] HOME

[1] [2] [3] [4] [5]

APPOINTMENT STATUS

- [ ] SCHEDULED
- [ ] UNSCHEDULED
- [ ] EMERGENCY

NEW PATIENT TO CLINIC

- [ ] YES
- [ ] NO

UCA DATA

CLINIC CODE: B - D - F

INPATIENT OR REFERRAL CODE: A - B - C - F

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z - Z

PROVIDER

#1 CARE PROVIDER	#2 CARE PROVIDER

TIME IN HOURS

#1		#2
[ ]	1/4	[ ]
[ ]	1/2	[ ]
[ ]	3/4	[ ]
[ ]	1	[ ]
[ ]	1 1/2	[ ]
[ ]	2	[ ]
[ ]	2 1/2	[ ]
[ ]	3	[ ]
[ ]	3 1/2	[ ]
[ ]	4	[ ]
[ ]	> 4	[ ]

NEW PATIENT TO PROVIDER

- [ ] YES
- [ ] NO

JOB RELATED ILLNESS/INJURY

- [ ] NO
- [ ] YES

DISPOSITION

- [ ] DISCHARGED FROM CLINIC
- [ ] RETURN PRN
- [ ] RETURN APPOINTMENT
- [ ] REFERRED TO OTHER CLINIC
- [ ] REFERRED TO FED FACILITY
- [ ] REFERRED TO CIV FACILITY
- [ ] QUARTERS (MILITARY)
- [ ] HOME (NON-MILITARY)
- [ ] WORK W/LIMITATIONS
- [ ] ADMITTED
- [ ] EXPIRED

ORDERED OUT OF CLINIC

LAB
[0] [1] [2] [3] [4] [5] [6] [7] [8] [9] [+]

PRESCRIPTIONS
[0] [1] [2] [3] [4] [5] [6] [7] [8] [9] [+]

XRAYS
- [ ] FLAT
- [ ] CONTRAST
- [ ] UGI
- [ ] BE
- [ ] CAT SCAN
- [ ] IVP
- [ ] OTHER

OTHER
- [ ] EEG
- [ ] EKG
- [ ] NUCLEAR MED SCAN
- [ ] PUL FUNCTION
- [ ] ULTRASONOGRAPHY

TYPE OF VISIT

- [ ] ROUTINE
- [ ] COMPLEX
- [ ] ACUTE

004173

DO NOT WRITE IN THIS AREA

EVALUATION/PROCEDURES/SERVICES

PROCEDURES

9356 ACE BANDAGE
9711 BLADDER TAP
7231 BONE MARROW BIOPSY
9925 CHEMOTHERAPY
9396 INHALATION THERAPY
3894 IV CUT-DOWN, (< 1 YEAR)
IV SCALP VEIN
0331 LUMBAR PUNCTURE
3800 PHLEBOTOMY
9393 RESUSCITATION
9937 SPIROMETRY
354 SPLINT APPLICATION
SUTURE PLACEMENT
9709 SUTURE REMOVAL
9903 TRANSFUSION

IMMUNIZATION (V07.2)

9939 DPT
9914 GAMMA GLOBULIN
9948 M-M-R (COMBINED)
9941 POLIO (ORAL)
TB SKIN TEST

THERAPEUTIC INJECTIONS

9929 EPINEPHRINE/SUSPHRINE

SPECIAL SERVICES

LETTER AND FORMS
SHOT RECORD REVIEW
5794 URETHRAL CATHERIZATION

LAB

89637 ART. BLOOD GASES
BLOOD CULTURE
HEMATOCRIT
HEMOGLOBIN
THROAT CULTURE
URINALYSIS
URINE CULTURE

EXAMINATIONS

COMPLETE PE
EAR/THROAT
GENERAL MEDICAL EXAM
PARTIAL PE
SCHOOL/SCOUT/CAMP
SKIN
WELL BABY
WELL CHILD

ADDITIONAL PROCEDURES

1 2

MARK ONE PRIMARY AND ONE SECONDARY (IF APPLICABLE) DIAGNOSES FOR THIS VISIT

1ST DX 2ND DX

FREQUENT DIAGNOSES

4779 ALLERGIC RHINITIS
4930 ASTHMA
4661 BRONCHIOLITIS
490 BRONCHITIS (UNQUALIFIED)
485 BRONCHOPNEU. (UNSPEC. ORG.)
37230 CONJUNCTIVITIS AND OPHTHALMIA
4644 CROUP SYNDROME
5589 GASTROENTERITIS AND COLITIS
684 IMPETIGO
4871 INFLUENZA (FLU/LIKE SYND.)
460 NASOPHARYNGITIS (COMMON COLD)
38010 OTITIS EXTERNA
38200 OTITIS MEDIA (ACUTE PURULENT)
38101 OTITIS MEDIA (ACUTE SEROUS)
3829 OTITIS MEDIA (UNSPECIFIED)
462 PHARYNGITIS
486 PNEUMONIA (UNSPEC. ORG.)
0340 STREPTOCOCCAL PHARYNGITIS
4658 URI
5990 UTI
0799 VIRAL INFECTION (UNSPECIFIED)

V709 EXAMS (GENERAL MEDICAL)
V703 EXAMS (MEDICAL-ADMIN)
V202 EXAMS (CHILD-DEVELOPMENTAL)

OTHER DIAGNOSIS

INFECTIVE AND PARASITIC DISEASES

0429 CHICKEN POX
0782 COXSACKIE VIRAL DISEASE
1109 DERMATOPHYTOSIS (UNSPEC. SITES)
0090 GASTROENTERITIS/COLITIS (INFEC.)
0539 HERPES ZOSTER
075 INFECTIOUS MONONUCLEOSIS
1179 INFECTIVE DISEASE, OTHER
1129 MONILIASIS (CUTANEOUS)
1330 SCABIES
0141 SCARLET FEVER
0389 SEPTICEMIA (UNSPECIFIED)
1120 THRUSH
07889 VIRAL DISEASES, OTHER
0579 VIRAL EXANTHEM, OTHER

NEOPLASMS

ENDOC., NUTR, METAB DIS

2591 THELARCHE

BLOOD DISEASES

2859 ANEMIA (UNSPECIFIED)
2809 ANEMIAS, IRON DEFICIENCY

MENTAL DISORDERS

3099 ADJ REACT. OF CHILDHOOD
3169 HYPERKINETIC REACTION

NERVOUS SYSTEM

3451 EPILEPSY (MAJOR)
3452 EPILEPSY (PETIT MAL)
3229 MENINGITIS (UNSPECIFIED)

EYE DISEASES

37530 DACRYOCYSTITIS

CIRCULATORY SYSTEM

390 RHEUMATIC FEVER W/O HEART INV.

RESPIRATORY SYSTEM

5163 ALVEOLITIS, IDIOPATH FIBRO
4930 ASTHMA (MIXED AND UNSPEC.)
49391 ASTHMA, W/STAT ASTHMATICUS
4939 ASTHMATIC BRONCHITIS
5188 BRONCHOLITHIASIS
5191 BRONCHOSPASM
5168 PNEUMONIA, INTERST UNSPEC ORG
481 PNEUMONIA, PNEUMOCOCCAL
4619 SINUSITIS, ACUTE

DIGESTIVE SYSTEM

5640 CONSTIPATION
FUNCTIONAL DISORDERS
5305 OF ESOPHAGUS
5649 OF INTESTINES
5369 OF STOMACH
5089 GASTROENTERITIS/COLITIS (NONINFEC.
5288 STOMATITIS
5207 TEETHING SYNDROME

GU/GYN

5997 HEMATURIA
59011 PYLEONEPHRITIS (ACUTE W/RENAL MED. NECR.)
59080 PYLEONEPHRITIS (ACUTE)
59760 URETHRITIS
5990 UTI
61610 VAGINITIS/VULVITIS

SKIN AND SUBCUTANEOUS TISSUE

6809 BOIL AND CARBUNCLE (UNSPECIFIED SITE)
6829 CELLULITIS (OTHER UNSPECIFIED)
68110 CELLULITIS OF TOE
68100 CELLULITIS OF FINGER
6918 ECZEMA/INFANTILE AND REL. CONDS.
683 LYMPHADENITIS, ACUTE
6819 PARONYCHIA
690 SEBORRHEIC DERMATITIS
6918 ATOPIC DERMATITIS
69209 ECZEMA/DERMATITIS (OTHER SPEC. AGENTS)
6929 CONTACT DERMATITIS (UNSPEC. CAUSE)
7051 PRICKLY HEAT
7089 URTICARIA (OTHER AND UNSPECIFIED)

MUSCULOSKELET/CONNECTIVE

7295 PAIN IN LIMB

PERINATAL CONDITIONS

7793 FEEDING PROBLEMS IN NEWBORN
7717 MONILIASIS (NEONATAL)
7742 NEONATAL JAUNDICE (PREMATURITY)
7746 NEONAT JAUND. (PHYSIOL.)
7651 PRE-TERM INFANT

SIGN, SYMPTOM, ILL-DEFINED COND

7890 ABDOMINAL PAIN
78609 APNEA
78650 CHEST PAIN
7803 CONVULSIONS (SEIZURE, FEBRILE)
7081 DYSURIA
7876 ENCOPRESIS
7083 ENURESIS
7847 EPISTAXIS
7834 FAILURE TO THRIVE
7833 FEEDING PROBLEM
7806 FEVER OF UNKNOWN ORIGIN
7884 FREQ URINATION/NOCTURIA
7809 GENERAL SYMPTOMS, OTHER
7840 HEADACHE (CEPHALGIA)
7852 HEART MURMUR (FUNCTIONAL)
78601 HYPERVENTILATION
7856 LYMPHADENOPATHY
7807 MALAISE/FATIGUE
7802 SYNCOPE/COLLAPSE
7083 URINARY INCONTINENCE

INJURIES AND ADVERSE EFFECTS

9609 ADVERSE EFFECTS OF ANTIBIOTICS
9953 ALLERGY (UNSPECIFIED)
9951 ANGIONEUROTIC EDEMA, URTICARIA
9769 BRUISE/CONTUSION (UNSPEC. SITE)
9492 BURN/UNSPEC. SITE, 2nd°
9490 BURN/UNSPEC. SITE, UNSPEC. DEGREE
9955 CHILD ABUSE
8540 HEAD INJURY
919 SUPERF. INJ. MULTI. SITES
8799 LACERATION(S) COMPLICATED
8798 LACERATION(S)(W/O COMPLICATION)
959 MUSCULOSKT. INJ. UNSPEC.
84500 SPRAIN/STRAIN ANKLE AND FOOT

SUPPLEMENTARY CLASSIFICATION

9623 SCHOOL PROBLEMS

ADDITIONAL DX

PRIMARY DX | SECONDARY DX

DO NOT MARK IN THIS AREA

Annex F

Suggested Ambulatory Encounter Record

Suggested Ambulatory Encounter Record

ITEM	FIELD TYPE & FILL	WIDTH	TOTAL WIDTH
Date	Numeric, DDMMYY	6	6
MTF Code (IPDS)	Numeric	4	4
UCA Outpatient Clinic	Alphanumeric	3	3
#1 Provider	Alphanumeric	5	5
#2 Provider	Alphanumeric	5	5
Type of Visit	Alphanumeric, Routine Complex Acute	1	1
Disposition	Numeric, Coded 11 Choices	2	2
Laboratory	Alphanumeric - Y/N	1	1
Prescriptions	Alphanumeric - Y/N	1	1
XRays	Alphanumeric - Y/N	1	1
Other	Alphanumeric - Y/N	1	1
Procedures*	Numeric, 3 Fields	5	15
Diagnoses	Alphanumeric, 2 Fields	5	10

TOTAL RECORD WIDTH.....55

This analysis assumes that all of the patient demographic data are stored in a separate administrative data section. This data element selection is based on Misener and Gilbert (1984).

*If coded in ICD-9-CM the width of these fields would be 4 columns. If coded in CPT (Clauser, Fanta, Finkel, & Perlman 1984), the field width would be 5 columns.

Annex G

Suggested Inpatient Record

Suggested Inpatient Record

ITEM	FIELD TYPE & FILL	WIDTH	TOTAL WIDTH
Reporting MTF Code	Numeric	4	4
Register Number	Numeric	7	7
Type of Case	Alphanumeric	1	1
Inpatient Clinic Svc.	Alphanumeric	3	3
#1 Provider*	Alphanumeric	5	5
#2 Provider*	Alphanumeric	5	5
Disposition	Alphanumeric	1	1
Date this Admission	Numeric	6	6
Total Sick Days	Numeric	3	3
Cause of Injury	Numeric	3	3
Diagnoses**	Alphaumeric, 3 Fields	7	21
Procedures**	Alphanumeric 3 Fields	6	18

TOTAL RECORD WIDTH.....77

This analysis assumes that all of the patient demographic data are stored in a separate administrative data section.

* This field would be added to the IPDS record.

** These fields would be modified to accommodate the ICD-9-CM codes. An examination of IPDS data suggests that the proposed combination of 3 diagnosis fields and 3 procedure fields will cover 93.6% of active duty dispositions, including 94.5% of those active duty patients discharged to duty, and 86.6% of all dispositions, based on data reported from Health Services Command facilities for the period September 1983 to August 1984.

Annex H

Suggested Medical Administrative Data Elements

DEPARTMENT OF THE ARMY
ACADEMY OF HEALTH SCIENCES, UNITED STATES ARMY
FORT SAM HOUSTON, TEXAS 78234

REPLY TO
ATTENTION OF

HSHA-CTT

3 February 1984

SUBJECT: Data Elements for the Soldier Data Tag (SDT)

Director
Doctrine and Combat Developments Directorate
US Army Soldier Support Center
ATTN: ATZI-DCD-S/MAJ Lacher
Fort Benjamin Harrison, IN 46216

1. The administrative portion of the medical record on the SDT was recently staffed through the Office of The Surgeon General, Headquarters, Health Services Command, US Army Patient Administration Systems and Biostatics Activity, and Academy of Health Sciences to obtain concurrences and/or recommended changes to the contents.

2. Their recommendations were consolidated and are incorporated in the format of the administrative data at Incl 1. A new section was created to separate physical data from administrative data (see Incl 2). The administrative data, as recommended, will provide all of the patient identification and demographic data required to complete DA Form 2985 (Admission and Coding Information Form) when admitting patients to Army hospitals. This will support the TAMMIS MEDPAR system once it is operational.

3. The clinical portion of the medical record was not staffed through the above activities in that it is being evaluated by the Health Care Studies and Clinical Investigations Activity.

ROBERT D. MCWILLIAM
COL, MSC
TAMMIS Product Manager

ADMINISTRATIVE DATA

Field Name	Field Size
Name	21
Grade	2
Sex	1
DOB	6
Race	1
Religion	1
Date Entered Active Duty	6
ETS	6
FMP	2
SSN	9
Unit	40
Telephone Number of Unit	7
Flying Status	1
Aero Rating/Designation	1
Patient Category	3
Primary MOS/SSI	5
Nuclear Surety Program	1
Name of Emergency Addressee	21
Relationship of Emergency Addressee	4
Address of Emergency Addressee	40
Telephone Number of Emergency Addressee	10
Location of Health Record	4
Date of last update of SDT	6

PHYSICAL DATA

Field Name	Field Size
Height	2
Weight	3
Blood Type	2
Physical Profile (PULHES) Date	12
Last Physical Examination	4
Next Scheduled Physical Examination	4
POR Qualified Y or N (If No, list principal condition)	1
	40

_____

_____

Identifying Scars (Length & Location)

1. _____
2. _____
3. _____
4. _____
5. _____

Annex I

Possible Dental Status Input Medium

HSC Form 416 (Test) 1 Oct 84 For use of this form, see AR6-5, proponent agency is HCSCIA-DE

		TODAY'S DATE									
		MONTH	DAY	YEAR	BIRTH YEAR	YEAR ENTERED SERVICE	YEARS AT CURRENT DUTY STATION	LAST DENTAL TREATMENT	RANK	FMP	SPONSOR SOCIAL SECURITY NUMBER
		JAN									
		FEB									
		MAR	0 0	85	0 0	0 0		0-6 MO	E 1		
		APR	1 1	86	1 1	1 1	1 YR	6-12 MO	W 2		
		MAY	2 2	87	2 2	2 2	1 YR	1-1 1-2 YR	O 3		
		JUN	3 3	88	3 3	3 3	2 YR	1 1/2-2 YR	4		
		JUL	4	89	4 4	4 4	3 YR	2-2 1/2 YR	5		
		AUG	5	90	5 5	5 5	4 YR	2 1/2-3 YR	6		
		SEP	6	91	6 6	6 6	5 YR	3-3 1-2 YR	7		
		OCT	7		7 7	7 7	6 YR	3 1/2-4 YR	8		
		NOV	8		8 8	8 8		4-4 1/2 YR	9		
		DEC	9		9 9	9 9		4 1/2-5 YR	10		

ROUTINE
- ROUTINE
- EMERGENCY
- OHMP

PATIENT CATEGORY

ARMY	A/D DEP
AF	RET DEP
N MC	OTHER
RETIRED	

- 1
- 2
- 3
- 4

- SOME H.S.
- HIGH SCHOOL
- SOME COLL
- COLL GRAD
- ADV DEG

- BLACK
- WHITE
- HISPANIC
- AM INDIAN/ALASKAN NATIVE
- ASIAN/PACIFIC ISLANDER
- OTHER

- NONE
- BWX
- PANOREX
- FMX

ORAL HYGIENE INDEX

UPPER ARCH

0 NONE 0	0 NONE 0	0 NONE 0
1 1/3 1	1 1/3 1	1 1/3 1
2 2/3 2	2 2/3 2	2 2/3 2
3 2/3+ 3	3 2/3+ 3	3 2/3+ 3
NA NA	NA NA	NA NA

LOWER ARCH

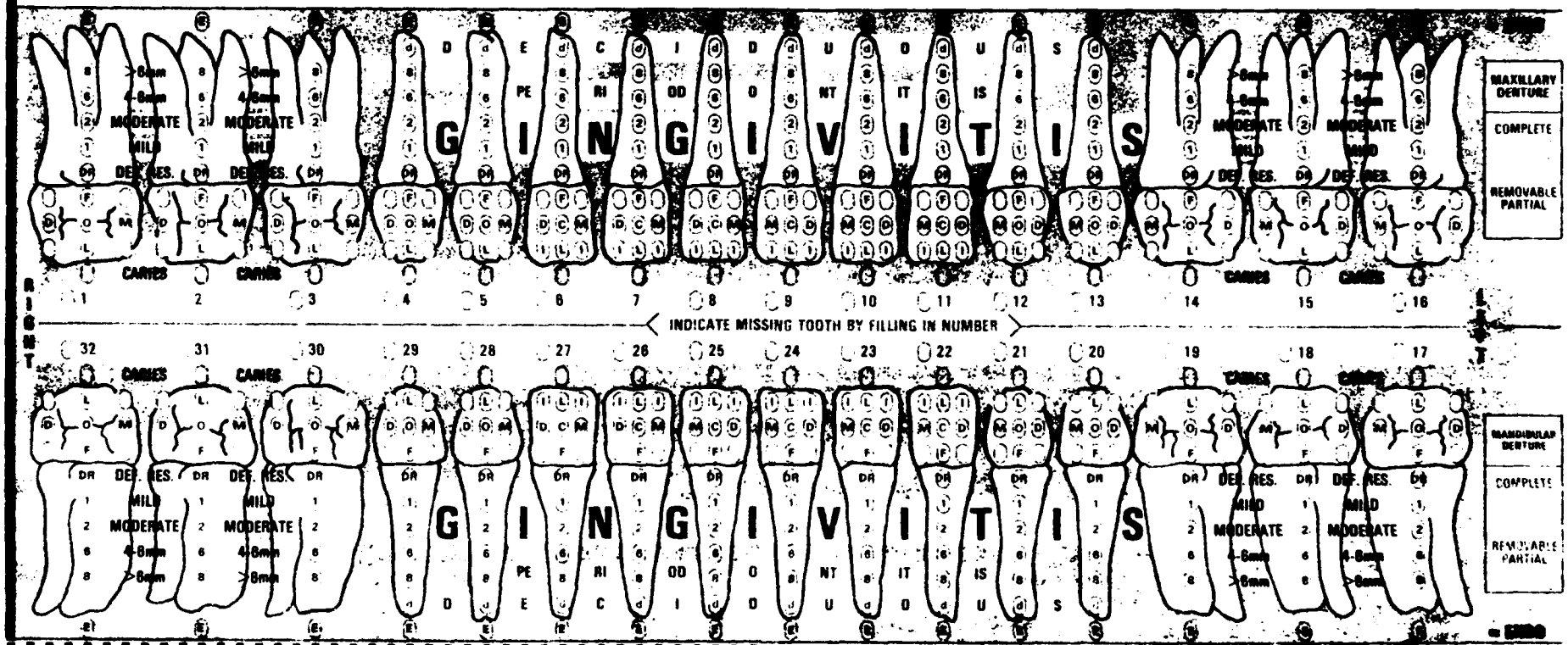
0 NONE 0	0 NONE 0	0 NONE 0
1 1/3 1	1 1/3 1	1 1/3 1
2 2/3 2	2 2/3 2	2 2/3 2
3 2/3+ 3	3 2/3+ 3	3 2/3+ 3
NA NA	NA NA	NA NA

TREATMENT NEEDS

CHARTING

- MALE
- FEMALE

- YES
- NO



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